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Transportation 2035 Plan for the San Francisco Bay Area

FINAL

April 2009

CHANGE IN MOTION

TRANSPORTATION 2035

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Transportation 2035 Plan for the San Francisco Bay Area

TRANSPORTATION-AIR QUALITY CONFORMITY ANALYSIS FOR THE TRANSPORTATION 2035 PLAN & 2009 TRANSPORTATION IMPROVEMENT PROGRAM AMENDMENT #09-06

Draft: January 9, 2009
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I. INTRODUCTION

The Metropolitan Transportation Commission (MTC) prepares a transportation air quality conformity analysis when MTC amends or updates its long-range regional transportation plan (RTP), or adds or deletes regionally significant, non-exempt projects into the Transportation Improvement Program (TIP).

The purpose of this conformity analysis is to conform the proposed Transportation 2035 Plan and proposed amendment to the 2009 Transportation Improvement Program (herein referred to as the 2009 TIP Amendment #09-06) in accordance with the latest U.S. EPA transportation conformity regulations and the Bay Area Conformity State Implementation Plan (Conformity SIP), which is also known as the Bay Area Air Quality Conformity Protocol (MTC Resolution No. 3757).

This report explains the basis for the conformity analysis and provides the results used by MTC to make a positive conformity finding on the Transportation 2035 Plan and 2009 Transportation Improvement Program (up through TIP Amendment #09-06).

Purpose of Conformity Analysis

The 1990 Clean Air Act Amendments (CAAA) outlines requirements for ensuring that federal transportation plans, programs and projects are consistent with ("conform to") the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant national ambient air quality standards. A conformity finding demonstrates that the total emissions projected for a RTP or TIP are within the emissions limits ("budgets") established by the SIP, and that transportation control measures (TCMs) are implemented in a timely fashion.

Conformity applies to areas that are designated non-attainment, and those redesignated to attainment after 1990 ("maintenance areas" with plans developed under Clean Air Act section 175A) for ozone, particulate matter, carbon monoxide, and nitrogen oxide. The U.S. EPA published conformity regulations to implement the 1990 CAAA conformity requirements in November 1993, and revised them in August 1995, November 1995, August 1997, July 2004, and May 2005.

Metropolitan Planning Organizations such as MTC are required to adopt and follow these regulations. In the Bay Area, the procedures were first adopted in September 1994 to comply with the 1990 CAAA. Four subsequent amendments to the transportation conformity procedures in August 1995, November 1995, August 1997, and July 2006 have been adopted by the three co-lead agencies (MTC, Association of Bay Area Governments (ABAG), and Bay Area Air Quality Management District (BAAQMD)). MTC Resolution 3757 represents the latest San Francisco Bay Area Transportation Air Quality Conformity Protocol adopted by the three agencies in July 2006. Acting on behalf of the three agencies, the BAAQMD

submitted this latest Protocol to California Air Resources Board (CARB) as a revision to the Bay Area Conformity SIP. CARB approved this proposed revision to the Bay Area's Conformity SIP in December 2006, and transmitted it to U.S. EPA for final action. U.S. EPA approved the Bay Area Conformity SIP in December 2007 (40 CFR Part 42).

These regulations and resolutions state in part that, MTC cannot approve any transportation plan, program or project unless these activities conform to the purpose of the federal air quality plan (officially titled the State Implementation Plan, or SIP). "Transportation plan" refers to the RTP. "Program" refers to the TIP, which is a financially realistic set of highway and transit projects to be funded over the next four years. A "transportation project" is any highway or transit improvement, which is included in the RTP and TIP and requires funding or approval from the Federal Highway Administration or the Federal Transit Administration. Conformity regulations also affect regionally significant non-federally funded projects which must be included in a conforming transportation plan and program.

Status of Regional Transportation Plan

A Regional Transportation Plan, or RTP, is a long-range plan which includes both long-range and short-range strategies/actions that lead to the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand. By federal law, the RTP covers a minimum planning horizon of 20 years and is updated every four years in areas which do not meet federal air quality standards. The RTP is financially constrained to the projected transportation revenues that will be reasonably available to the region over the planning period. Once adopted, the RTP guides the development of the TIP for the region.

The latest conforming RTP is the Transportation 2030 Plan, which was adopted by the Commission in February 2005 (MTC Resolution 3681). The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) approved MTC's conformity determination for the Transportation 2030 Plan on March 17, 2005. The Transportation 2030 Plan was subsequently amended on May 23, 2007 (MTC Resolution No. 3804) and on December 19, 2007 via an administrative modification. The FHWA and FTA issued a new conformity determination for the Transportation 2035 Plan, as amended, on June 14, 2007.

The proposed Transportation 2035 Plan is the 2009 update to the current Transportation 2030 Plan. This conformity analysis serves to conform the Transportation 2035 Plan.

The proposed Transportation 2035 Plan was prepared by MTC in partnership with the Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District (BAAQMD), and Bay Conservation and Development Commission (BCDC) and in collaboration with federal and state agencies, Caltrans, nine county-level Congestion Management Agencies (CMAs), over two dozen Bay Area transit operators, and numerous transportation stakeholders and the public. The proposed Transportation 2035 Plan

represents the transportation policy and action statement of how the Bay Area will approach the region's transportation needs through the 2035 planning horizon year. The proposed Transportation 2035 Plan is financially constrained – meaning its funds for investments match with revenues projected to be reasonably available to the region over the next 25 years. The proposed Transportation 2035 Plan features a set of highway, transit, local roadway, bicycle and pedestrian projects identified through regional and local transportation planning process.

Refer to **Appendix B** for detailed project listing of projects/programs included in the proposed Transportation 2035 Plan. See MTC's Transportation 2035 Plan (April 2009) for full details about the plan.

Status of Transportation Improvement Program

The federally required Transportation Improvement Program, or TIP, is a comprehensive listing of Bay Area surface transportation projects that receive federal funds or are subject to a federally required action, or are considered regionally significant for air quality conformity purposes. MTC prepares and adopts the TIP every two years. The TIP must cover at least a four-year period and contain a priority list of projects grouped by year. The TIP is also financially constrained – meaning that the amount of funding programmed does not exceed the amount of funding reasonably expected to be available. Adoption of the TIP must be accompanied by an air quality conformity analysis and finding, and all projects included in the TIP must be derived from and/or be consistent with the RTP. Whenever a new RTP is adopted, a new air quality conformity analysis must be prepared for the TIP, to ensure consistency between the current Plan (RTP) and Program (TIP).

The latest conforming TIP is the 2009 TIP adopted by the Commission on May 28, 2008 (MTC Resolution No. 3875), and approved by the FHWA and FTA on November 17, 2008. The current 2009 TIP covers the four-year period from FY 2008-09 through FY 2011-12, and contains approximately 1,100 projects totaling about $13 billion dollars.

MTC has prepared Amendment #09-06 to the 2009 TIP to conform the 2009 TIP to the Transportation 2035 Plan for air quality conformity purposes. This amendment adds new sales tax projects, reconciles State Transportation Improvement Program (STIP) projects, and adds or deletes other exempt and non-exempt projects consistent with the new RTP. This conformity analysis serves to re-conform the entire 2009 TIP.

Refer to **Appendix A** for detailed project listing of projects/programs in the 2009 TIP Amendment #09-06. Note that specific funding sources are identified in the TIP amendment itself. See MTC's 2009 Transportation Improvement Program Amendment #09-06 (April 2009) for full details about the TIP.

II. BAY AREA AIR POLLUTANT DESIGNATIONS

National 1-Hour Ozone Standard

On November 6, 1991, the U.S. Environmental Protection Agency (EPA) designated the Bay Area as a moderate ozone non-attainment area. Based on "clean" air monitoring data from 1990 to 1993, the co-lead agencies—BAAQMD, MTC, and ABAG— determined that no ozone violations had occurred and requested the California Air Resources Board (ARB) to forward a redesignation request and an ozone maintenance plan to U.S. EPA.

On May 25, 1995, the Bay Area was classified as an ozone maintenance area, having attained the 1-hour national ozone standard for five years (1990-1994). However, on July 10, 1998 the U.S. EPA published a Notice of Final Rulemaking redesignating the Bay Area back to an ozone non-attainment (unclassified) area. This action was due to violations of the 1-hour standard that occurred during the summers of 1995 and 1996, and became final on August 10, 1998.

On October 31, 2003, U.S. EPA proposed a finding of attainment of the national 1-hour ozone standard for the Bay Area. The proposed finding was based on air quality monitoring data from the 2001, 2002, and 2003 ozone seasons. In April 2004, U.S. EPA made a final finding that the Bay Area had attained the national 1-hour ozone standard. Because of this finding, some of the elements of the 2001 Ozone Attainment Plan, submitted to EPA to demonstrate attainment of the 1-hour standard, were suspended. The finding of attainment did not mean the Bay Area had been reclassified as an attainment area for the 1-hour standard. To be reclassified, the region would have had to submit a formal redesignation request to EPA, along with a maintenance plan showing how the region would continue to attain the standard for ten years. However, this redesignation request was no longer necessary upon the establishment of the new national 8-hour ozone standard.

On April 15, 2004, EPA issued the first phase of the final implementation rule designating and classifying areas not meeting the federal 8-hour ozone standard. This phase of the implementation rule explained how EPA was classifying areas not meeting the national air quality standard for 8-hour ozone. It also established a process for transitioning from implementing the 1-hour standard for ozone to implementing the more protective 8-hour ozone standard. The rule also established attainment dates for the 8-hour standard and the timing of emissions reductions needed for attainment. The 8-hour designations and classifications took effect on June 15, 2004; and one year following this effective date, EPA revoked the 1-hour standard.

National 8-Hour Ozone Standard

In July 1997, U.S. EPA revised the ozone standard, setting it to 0.08 parts per million in concentration-based form, specifically the 3-year average of the annual 4th highest daily maximum 8-hour ozone concentrations. In April 2004, EPA issued final designations for attainment and non-attainment areas. The Bay Area monitoring stations recorded concentrations that exceeded the national 8-hour ozone standard for 2001, 2002 and 2003. In June 2004, EPA formally designated the Bay Area as a non-attainment area for national 8-hour ozone, and classified the region as "marginal" based on five classes of non-attainment areas for ozone, ranging from marginal to extreme. Marginal, non-attainment areas must attain the national 8-hour ozone standard by June 15, 2007.

On July 1, 2004, EPA published a final rule amending the transportation conformity rule to address the new national 8-hour ozone standard. The amended rule stated that Plans and TIPs in nonattainment areas must be found to conform against the new standard by one year after the effective date of designation – by June 15, 2005 for 8-hour ozone areas. Conformity for the 1-hour ozone standard will no longer apply in existing 1-hour ozone nonattainment and maintenance areas once the 1-hour ozone standard is revoked; this occurred on June 15, 2005. Furthermore, prior to 8-hour budgets being established, all areas with adequate or approved 1-hour motor vehicle emission budgets must use them to demonstrate conformity with the 8-hour ozone standard, unless it is determined through interagency consultation that using the interim emissions tests is more appropriate. The conformity finding in this report is based on the approved 1-hour motor vehicle emissions budget.

In March 2008, EPA lowered the national 8-hour ozone standard from 0.80 parts per million to 0.75 parts per million. On March 12, 2009, ARB submitted its recommendations for area designations for the revised national 8-hour ozone standard. These recommendations are based on ozone air quality data collected during 2006 through 2008. The ARB recommended that the Bay Area be designated as nonattainment for the national 8-hour ozone standard. EPA has one year to review the recommendations and will notify states by November 12, 2009 if they plan to modify the state-recommended areas. EPA will issue final designations by March 12, 2010. These final designations may be based on more recent monitoring data.

National 8-Hour Carbon Monoxide Standard

In April 1998, the Bay Area was redesignated to a "maintenance area" for the national 8-hour carbon monoxide (CO) standard, having demonstrated attainment of the standards. As a maintenance area, the region must assure continued attainment of the CO standard.

Approved Motor Vehicle Emissions Budgets

The Bay Area has conformity requirements for both the federal ozone and CO standards. Under these requirements, the Bay Area has to meet a motor vehicle emission "budget" test for Volatile Organic Compounds (VOC), Nitrogen Oxides (NO_X) and CO. To make a positive conformity finding, MTC must demonstrate that the calculated motor vehicle

emissions in the region are lower than the approved budgets. As mentioned above, under EPA's conformity rule for the national 8-hour ozone standard, the existing 1-hour motor vehicle emission budget is to be used for conformity analyses until it is replaced by another budget.

For the ozone precursor emissions VOC and NO_X, the applicable motor vehicle emissions budget was developed for the 2006 attainment year as part of the 2001 Ozone Attainment Plan and was subsequently approved by EPA.

For CO, the applicable motor vehicle emissions budget was developed for the 2004 Revisions to the California State Implementation Plan for Carbon Monoxide (herein referred to as the 2004 Carbon Monoxide Maintenance Plan).

The motor vehicle emission budgets are listed below:

VOC:	164 tons per day (2006 and beyond)
NOx:	270.3 tons per day (2006 and beyond)
CO:	1,850 tons per day (2003 and beyond)

On road motor vehicle emissions are analyzed for various analysis years that must not be more than 10 years apart, or more than 10 years from the base year used to validate the model (2000). For this conformity analysis, the analysis years are 2015, 2025, and 2035 for VOC and NOx. MTC has prepared separate travel forecasts for the Bay Area for each of these years. For CO, the analysis years are 2015, 2018, 2025, and 2035. Travel forecast data for year 2018 were interpolated between 2015 and 2025. These travel forecasts are then used to calculate motor vehicle emissions.

III. CONFORMITY ANALYSIS & RESULTS

Approach to Conformity Analysis

MTC has used the latest planning assumptions for the purpose of preparing this conformity analysis. Regional on-road motor vehicle emissions for future years are estimated using MTC's travel demand forecast model (BAYCAST 2000), which estimates vehicle activity in the Bay Area, in conjunction with the ARB's latest model for determining motor vehicle emissions (EMFAC2007, Version 2.3).

The MTC travel demand model requires various inputs – demographic assumptions, pricing assumptions, travel behavior assumptions and highway and transit network assumptions. This conformity analysis uses the latest socio-economic/land use forecast series *Projections 2007* developed and adopted by ABAG and the latest validated version of the MTC travel demand model (BAYCAST 2000).

In addition, pricing assumptions include projected parking prices, gasoline and non-gasoline auto operating costs, fuel economy, bridge tolls, and transit fares. Travel behavior

assumptions include trip peaking factors, vehicle occupancy factors, and estimates of interregional commuters. Highway and transit networks were updated for each analysis year to reflect investments in the proposed Transportation 2035 Plan (see Appendix B) and 2009 TIP Amendment #09-06 (see Appendix A).

Regional VMT and engine starts (which are needed for emission calculations) are forecasted using a combination of output from MTC's travel demand forecasting model and base year (2000) VMT information provided by the ARB. For conformity purposes, MTC agreed to follow ARB's protocol for estimating VMT.

Refer to **Appendix C** for detailed travel and air quality modeling assumptions used in this conformity analysis.

Consultation Process

MTC has consulted on the preparation of this conformity analysis and other conformity related issues with the Bay Area's Air Quality Conformity Task Force. The Conformity Task Force is composed of representatives of U.S. EPA, ARB, FHWA, FTA, Caltrans, MTC, BAAQMD, ABAG, the nine county Congestion Management Agencies, and Bay Area transit operators. The Conformity Task Force reviews the assumptions going into the analysis, consults on TCM implementation issues, and reviews the results of the conformity analysis. The task force meetings are open to the public and are regularly attended by interested members of the public. Topics covered in past meetings of the Air Quality Conformity Task Force include the following:

June 2008

- Transportation 2035 Update
- Approach, Assumptions, and Schedule for the Conformity Analysis for the Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06
- Air Quality Updates

December 2008

- Transportation 2035 Update
- Administrative Draft Conformity Analysis for the Transportation 2035 and 2009 Transportation Improvement Program Amendment #09-06
- Interagency Consultation Requirements for $PM_{2.5}$ HOT Spot Analysis
- Overview of ABAG's Projections 2009
- Air Quality Updates

February 2009

- Transportation 2035 Update
- Response to Comments & Proposed Final Conformity Analysis for the Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06
- Air Quality Updates

Comparison of Motor Vehicle Emissions To Budgets

As explained earlier, motor vehicle emissions budgets are established in the SIP for VOCs, NO_x and carbon monoxide (CO). To make a positive conformity finding, the regional motor vehicle emissions must be equal to or less than these budgets. The results of the vehicle activity forecasts and motor vehicle emission calculations are shown below for each separate analysis year. For VOC and NO_x, the motor vehicle emission budget also reflects anticipated emission reductions from five Transportation Control Measures (TCMs) incorporated in the 2001 Ozone Attainment Plan (Table 1).

TABLE 1
VOC AND NO_X EMISSIONS BUDGETS FROM 2001 OZONE ATTAINMENT PLAN (TONS/DAY)

VOC	
2006 On Road Motor Vehicle Emissions	168.5
2006 Mobile Source Control Measure Benefits	(4.0)
2006 TCM Benefits	(0.5)
2006 Emissions Budget	164.0
NO_X	
2006 On Road Motor Vehicle Emissions	271.0
2006 TCM Benefits	(0.7)
2006 Emissions Budget	270.3

TABLE 2
VEHICLE ACTIVITY FORECASTS

	2015	2025	2035
VEHICLES IN USE	5,457,800	6,102,453	6,693,633
Daily VMT (1000s)	173,560	191,718	209,785
Engine Starts	36,181,142	40,134,461	43,911,799

Carbon Monoxide Maintenance Plan Budget

The budget for carbon monoxide is derived from the 2004 Carbon Monoxide Maintenance Plan. The emission budget for the Bay Area is 1,850 tons per day. This budget applies to all subsequent analysis years as required by federal conformity regulation, including: any interim year conformity analyses, the 2018 horizon year, and years beyond 2018.

Comparison of Estimated Regional Motor Vehicle Emissions to the Budget

The motor vehicle activity forecasts for the Transportation 2035 Plan and 2009 TIP Amendment #09-06 for the various horizon years are converted to motor vehicle emission estimates by MTC using EMFAC2007.

Table 3A and 3B compares the results of the various analyses with the applicable budgets. The analyses indicate that the motor vehicle emissions are substantially below the budget, due in large part to recent improvements in ARB's latest EMFAC model which reflect the effects of cleaner vehicles in the California fleet and the enhanced Smog Check program now in effect in the Bay Area. With respect to the new Maintenance Plan motor vehicle emission budget for CO, Table 3B shows that calculated motor vehicle emissions will be well below the new budget of 1,850 tons per day in 2018 as well.

The estimated effectiveness of the various Transportation Control Measures, given their current implementation status is shown in Table 4. TCMs A through E are fully implemented. They have achieved the required cumulative total emission reductions of 0.5 tons per day of VOC and 0.7 tons per day of NO_x by 2006.

TABLE 3A
EMISSIONS BUDGET COMPARISONS FOR OZONE PRECUSORS (TONS/DAY)

Year	VOC Budget*	On-Road Motor Vehicles VOC	TCMs**	Net Emissions
2015	164.0	72.54	(0.3)	72.24
2025	164.0	49.06	(0.3)	48.76
2035	164.0	37.21	(0.3)	36.91

Year	NO_X Budget*	On-Road Motor Vehicles NO_X	TCMs**	Net Emissions
2015	270.3	108.39	(0.5)	107.89
2025	270.3	59.58	(0.5)	59.08
2035	270.3	42.83	(0.5)	42.33

**2001 Ozone Attainment Plan*
**The transit services for TCM A Regional Express Bus Program were modeled. The emission benefits from TCM A are therefore included in the On-Road Motor Vehicles VOC and NOx emission inventories for 2006 and beyond.

TABLE 3B
EMISSIONS BUDGET COMPARISONS FOR CARBON MONOXIDE (TONS/DAY)

Year	2004 CO Budget*	Estimated CO
2015	1,850	611.82
2018	1,850	532.94**
2025	1,850	348.89
2035	1,850	268.72

**2004 Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for 10 Federal Planning Areas*
***Estimated CO emissions for 2018 is extrapolated from the 2015 and 2025 analysis years.*

TABLE 4
EMISSIONS REDUCTIONS FOR TRANSPORTATION CONTROL MEASURES (TCMS) A – E IN STATE IMPLEMENTATION PLAN THROUGH DECEMBER 2006 (TONS PER DAY)

TCM	VOC Emission Reductions through December 2006	NOx Emission Reductions through December 2006
TCM A Regional Express Bus Program	0.20	0.20
TCM B Bicycle/Pedestrian Program	0.04	0.03
TCM C Transportation for Livable Communities	0.08	0.12
TCM D Expansion of Freeway Service Patrol	0.10	0.25
TCM E Transit Access to Airports	0.09	0.13
Total Reductions	0.5	0.7

IV. TRANSPORTATION CONTROL MEASURES

History of Transportation Control Measures

Transportation control measures (TCMs) are strategies to reduce vehicle emissions. They include such strategies as improved transit service and transit coordination, ridesharing services and new carpool lanes, signal timing, freeway incident management, increased gas taxes and bridge tolls to encourage use of alternative modes, etc. The original set of TCMs plus the five new TCMs (A-E) have been fully implemented. The TCMs were added over successive revisions to the SIP (see Table 5). For more information on TCMs 1-28, which are completed, see the *Transportation Air Quality Conformity Analysis for the 2001 Regional Transportation Plan and FY 2001 Transportation Improvement Program Amendment 01-32 (February 2002)*. This report can be found in the MTC/ABAG Library.

- Twelve (12) ozone measures were originally listed in the 1982 Bay Area Air Quality Plan.

- In response to a 1990 lawsuit in the federal District Court, sixteen (16) additional TCMs were subsequently adopted by MTC in February 1990 as contingency measures to bring the region back on the "Reasonable Further Progress" (RFP) line. The Federal District order issued on May 11, 1992, found that these contingency TCMs were sufficient to bring the region back on the RFP track anticipated in the SIP. These measures became part of the SIP when U.S. EPA approved the 1994 Ozone Maintenance Plan.

- Two (2) transportation control measures from the 1982 Bay Area Air Quality Plan apply to Carbon Monoxide control strategies, for which the region is in attainment with the federal standard, and primarily targeted downtown San Jose (which had the

most significant CO problem at that time.) MTC also adopted a set of TCM enhancements in November 1991 to eliminate a shortfall in regional carbon monoxide emissions identified in the District Court's April 19, 1991 order. Carbon monoxide standards have been achieved primarily through the use of oxygenated/reformulated fuels in cars and with improvements in the Smog Check program.

- As part of EPA's partial approval/partial disapproval of the 1999 Ozone Attainment Plan, four (4) TCMs were deleted from the ozone plan (but two of these remain in the Carbon Monoxide Maintenance Plan).

- Five (5) new Transportation Control Measures were adopted as part of the new 2001 1-Hour Ozone Attainment Plan and are fully funded in the TIP and 2001 Regional Transportation Plan.

With respect to TCM 2 from the 1982 SIP, there has been a protracted debate, leading to a citizens lawsuit in federal court, about the obligations associated with this TCM. On April 6, 2004 MTC prevailed in the U.S. Court of Appeals for the Ninth Circuit which concluded that TCM 2 does not impose any additional enforceable obligation on MTC to increase ridership on public transit ridership by 15% over 1982-83 levels by November 2006 (Bayview Hunters Point Community Advocates v. Metropolitan Transportation Com'n, (2004 WL 728247, 4 Cal. Daily Op. Serv. 2919, 2004 Daily Journal D.A.R. 4209, 9th Cir.(Cal.), Apr 06, 2004)). Thus TCM 2 has been resolved, and there are no further implementation issues to address in this TCM.

TABLE 5
Transportation Control Measures (TCMs) in the State Implementation Plan

TCM	*Description*
Original TCMs from 1982 Bay Area Air Quality Plan	
TCM 1	Reaffirm Commitment to 28 percent Transit Ridership Increase Between 1978 and 1983
TCM 2	Support Post-1983 Improvements in the Operators' Five-Year Plans and, After Consultation with the Operators, Adopt Ridership Increase Target for the Period 1983 through 1987
TCM 3	Seek to Expand and Improve Public Transit Beyond Committed Levels
TCM 4	High Occupancy Vehicle (HOV) Lanes and Ramp Metering
TCM 5	Support RIDES Efforts
TCM 6*	Continue Efforts to Obtain Funding to Support Long Range Transit Improvements
TCM 7	Preferential Parking
TCM 8	Shared Use Park and Ride Lots
TCM 9	Expand Commute Alternatives Program
TCM 10	Information Program for Local Governments
TCM 11**	Gasoline Conservation Awareness Program (GasCAP)
TCM 12**	Santa Clara County Commuter Transportation Program
Contingency Plan TCMs Adopted by MTC in February 1990 (MTC Resolution 2131)	
TCM 13	Increase Bridge Tolls to $1.00 on All Bridges
TCM 14	Bay Bridge Surcharge of $1.00
TCM 15	Increase State Gas Tax by 9 Cents
TCM 16*	Implement MTC Resolution 1876, Revised — New Rail Starts
TCM 17	Continue Post-Earthquake Transit Services
TCM 18	Sacramento-Bay Area Amtrak Service
TCM 19	Upgrade Caltrain Service
TCM 20	Regional HOV System Plan
TCM 21	Regional Transit Coordination
TCM 22	Expand Regional Transit Connection Ticket Distribution
TCM 23	Employer Audits
TCM 24	Expand Signal Timing Program to New Cities
TCM 25	Maintain Existing Signal Timing Programs
TCM 26	Incident Management on Bay Area Freeways
TCM 27	Update MTC Guidance on Development of Local TSM Programs
TCM 28	Local Transportation Systems Management (TSM) Initiatives
New TCMs in 2001 Ozone Attainment Plan	
TCM A	Regional Express Bus Program
TCM B	Bicycle/Pedestrian Program
TCM C	Transportation for Livable Communities
TCM D	Expansion of Freeway Service Patrol
TCM E	Transit Access to Airports

*Deleted by EPA action from ozone plan
**Deleted by EPA action from ozone plan, but retained in Carbon Monoxide Maintenance Plan.

Source: Bay Area Air Quality Management District, Metropolitan Transportation Commission, 2001.

Status of Transportation Control Measures

TCMs A-E were approved into the SIP as part of EPA's Finding of Attainment for the San Francisco Bay Area (April 2004). The conformity analysis must demonstrate that TCMs are being implemented on schedule (40 CFR 93.113). TCMs A-E have specific implementation steps which are used to determine progress in advancing these TCMs (see Table 6). TCMs A-E are now fully implemented.

TABLE 6
IMPLEMENTATION STATUS OF FEDERAL TRANSPORTATION CONTROL MEASURES FOR OZONE (TCMS A – E)

#	TCM	Description	Ozone Attainment Plan Implementation Schedule	Implementation Status
A	Regional Express Bus Program	Program includes purchase of approximately 90 low emission buses to operate new or enhanced express bus services. Buses will meet all applicable ARB standards, and will include particulate traps or filters. MTC will approve $40 million in funding to various transit operators for bus acquisition. Program assumes transit operators can sustain service for a five year period. Actual emission reductions will be determined based on routes selected by MTC.	FY 2003. Complete once $40 million in funding pursuant to Government Code Section 14556.40 is approved by the California Transportation Commission and obligated by bus operators	$40 million for this program was allocated by the CTC in August 2001. The participating transit operators have ordered and received a total of 94 buses. All buses are currently in operations. TCM A is fully implemented.
B	Bicycle / Pedestrian Program	Fund high priority projects in countywide plans consistent with TDA funding availability. MTC would fund only projects that are exempt from CEQA, have no significant environmental impacts, or adequately mitigate any adverse environmental impacts. Actual emission reductions will be determined based on the projects funded.	FY 2004 – 2006. Complete once $15 million in TDA Article 3 is allocated by MTC.	MTC allocated over $20 million in TDA Article 3 funds during FY2004, FY2005, and FY2006. TCM B is fully implemented.

#	TCM	Description	Ozone Attainment Plan Implementation Schedule	Implementation Status
C	Transportation for Livable Communities (TLC)	Program provides planning grants, technical assistance, and capital grants to help cities and nonprofit agencies link transportation projects with community plans. MTC would fund only projects that are exempt from CEQA, have no significant environmental impacts, or adequately mitigate any adverse environmental impacts. Actual emission reductions will be based on the projects funded.	FY 2004 – 2006. Complete once $27 million in TLC grant funding is approved by MTC	In December 2003, the Commission reaffirmed its commitment of $27 million annually over 25 years for the TLC program as part of Phase 1 of the Transportation 2030 Plan. MTC and the county Congestion Management Agencies (CMAs) have approved over $27 million in TLC grant funding by FY 2006. In November 2004, MTC approved $500,000 for regional TLC Community Design Planning Program, and in December 2004, MTC approved $18.4 million in TLC funding for the regional TLC Capital program. As of December 2006, CMAs in Alameda, Marin and Sonoma counties approved an additional $12.4 million in their county-level TLC Capital programs for a regional total of $31.2 million. TCM C is fully implemented.
D	Additional Freeway Service Patrol	Operation of 55 lane miles of new roving tow truck patrols beyond routes which existed in 2000. TCM commitment would be satisfied by any combination for routes adding 55 miles. Tow trucks used in service are new vehicles meeting all applicable ARB standards.	FY 2001. Complete by maintaining increase in FSP mileage through December 2006	FSP continues to maintain the operation of the 55 lane miles of new roving tow truck coverage. This level of service was maintained through 2006. FSP continues to expand its service areas. TCM D is fully implemented. .
E	Transit Access to Airports	Take credit for emission reductions from air passengers who use BART to SFO, as these reductions are not included in the Baseline.	BART – SFO service to start in FY 2003. Complete by maintaining service through December 2006	Service began June 2003. Service adjustments have been made since start of revenue service. The BART to SFO service has been maintained through 2006 and is continued. TCM E is fully implemented.

V. RESPONSE TO PUBLIC COMMENTS

MTC's Planning Committee released the Draft Conformity Analysis for a 30-day public review period from January 9, 2009 to February 9, 2009. MTC received one comment letter on the Draft Conformity Analysis (see Appendix E). MTC's responses to comments are as follows:

Commenter: David Schonbrunn, TRANSDEF (Letter dated January 20, 2009)

Comment #1
As regards the TIP Amendment, what due diligence has been performed on the cost estimate of the "BART to Warm Spring to San Jose Extension" (sic) project that makes up over half of the Grand Total of $11.69 billion of projects being added to the TIP? What was the year of the cost estimate that was escalated into $6.1 billion in Year of Expenditure dollars? Can MTC confirm that this is the most recent cost estimate? We are aware that VTA completed 65% design-level cost estimates last year, which were withheld from the public during the campaign for Santa Clara County's Measure B.

Response #1
As part of the 3434 Strategic Plan, MTC staff requested and received an update on the cost estimate for the BART to San Jose project from VTA staff. This cost estimate is $6.1 billion in year of expenditure dollars. Note that VTA staff provided the cost estimate in year of expenditure dollars, and thus MTC staff did not escalate this cost estimate. We confirmed with VTA staff that this was the most recent and accurate cost estimate available to date. Additionally, on September 17, 2008, the California Transportation Commission approved the following item related to Traffic Congestion Relief Program funding, which reflects the $6.1 billion cost estimate for the BART to San Jose project: http://www.dot.ca.gov/hq/transprog/ctcbooks/2008/0908/47_2.1a2.pdf.[1]

Comment #2
In looking at Appendix B, the listing of projects is very heavily front-loaded. It seems unlikely that so many projects can be "Complete and Operational by 2015." Please advise as to whether the phasing of projects will affect the model outputs for the various analysis years enough to change the Conformity Analysis.

Response #2
Project sponsors submitted project schedule information, including the start and end dates for each project development phase, as part of the project submittal for the Transportation 2035 Plan. MTC then aligns the project schedule information with the appropriate analysis years (2015, 2025, or 2035). Should there be project phasing, we assume that the phase of that project is a complete and operable segment; so therefore, we do not view phasing of projects to have an affect on model outputs for the various analysis years.

[1] On February 27, 2009, the Santa Clara VTA staff presented a revised cost estimate of $7.6 billion based on 65% design to their board.

Comment #3
We believe a better choice for the gasoline price assumption used in modeling would be the result from the 5 year linear regression model. This 5 year period has had far greater gas price volatility than the 10 year period that was chosen for the Conformity Analysis and RTP EIR. We expect gas prices to fluctuate much more in the future than they have in the past, due to the clash between the flattening of global oil production and exponentially growing demand.

The issue here is not accurate prediction—the issue is risk management, and making sure that MTC has created the most resilient plan possible to enable Bay Area residents to cope with large changes in the cost of transportation. Please remember that many consider the root of the current home foreclosure crisis to be the extraordinary jump in gasoline prices, which made mortgages unaffordable for many when coupled with the high cost of commuting from the urban fringe.

Response #3
The gas price assumption used by MTC in its travel forecasts is an honest assessment of trends based on historical and current gas prices in the Bay Area over a twenty-year time period. MTC staff discussed this model assumption with the Air Quality Conformity Task Force on June 9, 2008, and the Conformity Task Force noted that the assumption appears reasonable (in the context of when it was produced in spring of 2008) for use in preparing forecasts for the Transportation 2035 Plan. See a summary of the meeting notes from the June 18, 2008 Air Quality Conformity Task Force meeting at: http://apps.mtc.ca.gov/meeting_packet_documents/agenda_1184/6-09-08_summarynotes_2.pdf.

In January 2009, the California Energy Commission (CEC) published a report titled *Transportation Fuel Price and Demand Forecasts: Inputs and Methods for the 2009 Integrated Energy Policy Report* which projects year 2030 gasoline prices, ranging from a low of $3.34 per gallon to a high of $4.78 per gallon, in 2008 dollars. The current gas price forecasts produced by the CEC are substantially lower than the trend-line projection used by MTC in production of the DEIR. For more information, see the CEC's report at: http://www.energy.ca.gov/2009publications/CEC-600-2009-001/CEC-600-2009-001-SD.PDF.

Comment #4
We are pleased to see that MTC has agreed with our suggestion that bridge tolls should escalate with inflation, in the same manner as transit fares are escalated.

Response #4
Comment noted.

Comment #5
We raise again the comment we have raised in past plans: Using VMT derived from ARB data sources places larger traffic volumes into speed buckets for the EMFAC model than are derived from the model at equilibrium. We therefore don't have confidence in the emissions projections, because we don't believe that these traffic volumes can physically occur as modeled.

Response #5
Commented noted. In November 2001, MTC and the California Air Resources Board agreed to a methodology for Bay Area conformity determinations, and MTC follows this protocol. See Appendix F for CARB letter dated November 30, 2001 detailing the methodology for Bay Area conformity determinations.

Comment #6
We never accepted the MTC assertion that the programming of funds for the Express Buses under TCM A constitutes full implementation of the TCM. Know that "the buses ordered….will be redeployed in alternative services" is inadequate for us. Please provide a listing of where the Express Buses purchased under TCM A have been deployed, as well as the number of vehicle revenue hours each of them has accumulated.

Response #6
As stated on p. 38 of the 2001 Ozone Attainment Plan, TCM A is complete once $40 million in funding pursuant to Government Code Section 14556.40 is approved by the California Transportation Commission and obligated by bus operators. The CTC approved the $40 million in August 2001, and funds were obligated by bus operators from March 2001 through January 2003. The routes, run-times and headways for these express buses are included in MTC travel forecasting models. MTC does not have information about the number of vehicle revenue hours for each express bus. See Appendix D for the listing of express buses and service routes.

Comment #7
Table 6 is incorrect when it comes to TCM E. Changes in service to Millbrae and other Peninsula stations on the BART SFO extension bring into question whether TCM E is still fully implemented. Please provide a complete narrative of changes in service on the SFO extension, and correct the statement "Service was maintained through 2006 and is continued."

Response #7
The BART to San Francisco International Airport (SFO) service began in June 2003, and while service adjustments have been made since the start of revenue service through December 2006 (see Appendix D for the BART document titled "SFO Changes Overtime"), the BART to SFO service remains in operation. Route service adjustments were made in response to changes in market demand and resources. The implementation status for TCM E has been updated as shown in Table 6.

VI. CONFORMITY FINDINGS

Based on the analysis, the following conformity findings are made:

- This conformity assessment was conducted consistent with U.S. EPA's transportation conformity regulations and with the Bay Area Air Quality Conformity Protocol adopted by MTC as Resolution No. 3757.

- The proposed Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06 provide for implementation of TCMs pursuant to the following federal regulation:

  (1) An examination of the specific steps and funding source(s) needed to fully implement each TCM indicates that TCMs which are eligible for funding under title 23 U.S.C. or the Federal Transit Laws are on or ahead of the schedule established in the applicable implementation plan, or, if such TCMs are behind the schedule established in the applicable implementation plan, the MPO and DOT have determined that past obstacles to implementation of the TCMs have been identified and have been or are being overcome, and that all State and local agencies with influence over approvals or funding for TCMs are given maximum priority to approval or funding to TCMs over other projects within their control, including projects in locations outside the non-attainment or maintenance area.

  (2) If TCMs in the applicable implementation plan have previously been programmed for Federal funding but the funds have not been obligated and the TCMs are behind the schedule in the implementation plan, then the TIP cannot be found to conform if the funds intended for those TCMs are reallocated to projects in the TIP other than TCMs, or if there are no other TCMs in the TIP, if the funds are reallocated to projects in the TIP other than projects which are eligible for Federal funding intended for air quality improvements projects, e.g., the Congestion Mitigation and Air Quality Improvement Program.

  (3) Nothing in the TIP may interfere with the implementation of any TCM in the applicable implementation plan. (40 CFR Part 93.113(c)).

- For carbon monoxide, motor vehicle emissions in the proposed Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06 are lower than the transportation conformity budget in the SIP.

- For Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx), motor vehicle emissions in the proposed Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06 are also lower than the applicable motor vehicle emission budgets for the national 8-hour ozone standard.

Appendix A
List of Projects in the 2009 TIP Amendment #09-06

Appendix A: 2009 TIP Amendment #09-06 Projects (sorted by County, then by Sponsor)

County	Sponsor	TIP ID	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
				Alameda County			
Alameda	Alameda County	ALA030002	21139	Vasco Road Safety Improvements	Increase projects limits from 1.9M to 4.4 miles. No net change in funding	2015	$ 34,035,000
Alameda	ACCMA	ALA070018	21116, 230665	I-580 (TriValley) Corridor - WB HOV/HOT lanes & connectors	Revise project scope to include "HOV/HOT Lanes" and increase project limits approx. 3 miles to Foothill Road	2015	$ 129,358,000
Alameda	ACCMA	ALA070020	21116, 230666	I-580 (TriValley) Corridor - EB HOV/HOT Lanes	Revise project scope to include "HOV/HOT Lanes" and increase project limit approx. 1 mile to Hacienda Road	2015	$ 197,978,000
Alameda	ACCMA	ALA090003	230099	I-580/I-680 Improvements	Amend in new project	2015	$ 392,500,000
Alameda	ACCMA	ALA090004	230665	I-580 Corridor Project	Amend in new project	2010	$ 30,000,000
Alameda	ACCMA	ALA090005	22765	Project Development for I-580/I-680 Interchange HOV direct connectors	Amend in new project	2015	$ 15,000,000
Alameda	City of Livermore	ALA090006	230156	W. Jack London Blvd. Extension, west of Isabel/Route 84 to El Charro Rd.	Amend in new project	2010	$ 18,000,000
Alameda	City of Livermore	ALA090007	21475	I-580/First Street Interchange Improvements	Amend in new project	2015	$ 37,000,000
Alameda	City of Livermore	ALA090008	21477	I-580/Greenville Road Interchange Improvements	Amend in new project	2015	$ 43,000,000
Alameda	Pleasanton	ALA090009	230244	SR 84 Widening from Pigeon Pass to I-680	Amend in new project	2011	$ 2,100,000
Alameda	Pleasanton	ALA090010	21472	VI-680/Bernal Avenue interchange improvements	Amend in new project	2014	$ 16,000,000
Alameda	ACCMA	ALA090011	230703	I-680 Express Bus Service	Amend in new project	2015	$ 10,400,000
Alameda	San Leandro	ALA090012	230066	I-880/Marina Blvd Interchange and Overcrossing Replacement	Amend in new project	2013	$ 33,000,000
Alameda	Pleasanton	ALA090013	21489	I-580 / Foothill Road interchange improvements	Amend in new project	2011	$ 2,100,000
Alameda	Emeryville	ALA090014	230108	I-80 Eastbound Off-ramp Widening at Powell Street	Amend in new project	2015	$ 1,800,000
Alameda	City of Union City	ALA090015	21123	Union City Intermodal Station infrastructure improvements (Phase 2)	Amend in new project	2015	$ 21,000,000
Alameda	City of Hayward	ALA090016	21093	Rt 92/Clawiter/Whitesell Interchange Improvements	Amend in new project	2015	$ 51,900,000
Alameda	City of Alameda	ALA090017	22766	Fruitvale Avenue Rail Bridge seismic retrofit	Amend in new project	2013	$ 2,600,000

County	Sponsor	TIP ID	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Alameda	ACCMA	ALA090018	230120	Truck Parking Facilities in North County (Planning Area 1)	Amend in new project	2015	$ 5,000,000
Alameda	ACCMA	ALA090019	230091	Central Alameda County Integrated Corridor Mobility Program and Adaptive Ramp Metering	Amend in new project	2015	$ 5,000,000
Alameda	City of Hayward	ALA090020	230054	I-880 Auxiliary Lanes between Whipple and Industrial Parkway West	Amend in new project	2015	$ 19,500,000
Alameda	City of Hayward	ALA090021	230052	I-880 NB and SB auxiliary lanes	Amend in new project	2015	$ 32,500,000
Alameda	Alameda County	ALA090022	22768	Estuary Bridges Seismic Retrofit and Repairs	Amend in new project	2010	$ 4,000,000
Alameda	Alameda County	ALA090023	22783	Fruitvale Avenue Roadway Bridge Seismic Retrofit	Amend in new project	2013	$ 8,000,000
Alameda	ACCMA	ALA090024	22780	Webster Street SMART Corridor Management Project	Amend in new project	2015	$ 1,234,000
Alameda	ACCMA	ALA090025	230608	I-580 WB Auxiliary Lane, First to Isabel	Amend in new project	2015	$ 1,000,000
Alameda	Port of Oakland	ALA090026	22760	Outer Harbor Intermodal Terminals (OHIT)	Amend in new project	2015	$ 220,000,000
Alameda	Port of Oakland	ALA090027	22082	Reconstruct 7th Street/Union Pacific Railroad grade separation	Amend in new project	2015	$ 350,000,000
Alameda	Caltrans	ALA090028	22013	Eastbound Truck Climbing Lane	Amend in new project	2015	$ 64,265,000
Contra Costa County							
Contra Costa	AC Transit	CC-090012	94045	Procure New Express Buses for I-80 HOV	Amend in new project	2010	$ 10,000,000
Contra Costa	AC Transit	CC-090014	98157	Enhanced Bus - San Pablo Corridor	Amend in new project	2012	$ 17,500,000
Contra Costa	AC Transit	CC-090027	230090	Expand Western Contra Costa County Transit Facilities	Amend in new project	2011	$ 20,000,000
Contra Costa	AC Transit	CC-090028	230193	Zero Emission Buses and Infrastructure Improvements	Amend in new project	2015	$ 30,000,000
Contra Costa	AC Transit	CC-090029	230194	Environmental Sustainability Program	Amend in new project	2015	$ 6,070,000
Contra Costa	AC Transit	CC-090030	230195	Safety and Security Enhancements	Amend in new project	2011	$ 4,200,000
Contra Costa	AC Transit	CC-090031	230196	San Pablo Dam Road Transit Priority Measures	Amend in new project	2011	$ 12,000,000
Contra Costa	Amtrak	CC-090032	22089	Martinez At-Grade Connector	Amend in new project	2015	$ 35,000,000
Contra Costa	Caltrans	CC-090010	230631	Double the existing rail track between Oakley and Port Chicago	Amend in new project	2012	$ 28,071,000
Contra Costa	City of Antioch	CC-090011	230253	Fitzuren Rd Widening and Realignment	Amend in new project	2012	$ 10,000,000
Contra Costa	City of Antioch	CC-090013	230232	Construct new interchange at Route 4/Phillips Lane	Amend in new project	2014	$ 50,100,000
Contra Costa	City of Brentwood	CC-090021	230250	Widen Brentwood Boulevard from 2 lanes to 4 lanes between Sunset Court and Lone Tree Way	Amend in new project	2014	$ 23,536,000
Contra Costa	City of Concord	CC-090023	230212	Clayton Road/Treat Boulevard Intersection Improvements	Amend in new project	2012	$ 2,091,000

County	Sponsor	TIP ID	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Contra Costa	City of Concord	CC-090026	98115	Ygnacio Valley/Kirker Pass Roads Widening from Michigan Blvd to Cowell Rd	Amend in new project	2014	$ 8,172,000

County	Sponsor	TIP ID	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Contra Costa	City of Hercules	CC-090008	230225	Central Hercules Arterial Improvements	Amend in new project	2012	$ 7,736,000
Contra Costa	City of Hercules	CC-090009	230321	Construct Phase 2 of Hercules Intermodal Station	Amend in new project	2015	$ 13,400,000
Contra Costa	City of Martinez	CC-090016	22614	Construct Martinez Intermodal Station (Phase 3)	Amend in new project	2012	$ 14,200,000
Contra Costa	City of Oakley	CC-090015	230274	Widen Main Street to 6 lanes from State Route 160 to Big Break Road	Amend in new project	2015	$ 12,630,000
Contra Costa	City of Pinole	CC-090017	230229	Widen Pinole Valley Road ramps at I-80	Amend in new project	2013	$ 787,000
Contra Costa	City of Richmond	CC-030001	21208	Richmond Parkway Transit Center	Amend scope to state "provide upto 800 parking spaces"	2014	$ 30,500,000
Contra Costa	City of Richmond	CC-090018	230084	Marina Bay Parkway Grade Separation	Amend in new project	2014	$ 37,770,000
Contra Costa	City of Richmond	CC-090025	230505	East Side Improvements Richmond Intermodal Station	Amend in new project	2012	$ 16,087,000
Contra Costa	City of San Pablo	CC-070035	22360	I-80 / San Pablo Dam Road Interchange Modifications	Amend scope to include modifying adjacent interchanges	2015	$ 118,000,000
Contra Costa	City of San Ramon	CC-070036	22352	I-680/Norris Canyon Bus Ramps	Amend scope to include reconstruction of overcrossing and widening of median	2015	$ 101,600,000
Contra Costa	City of San Ramon	CC-090020	98132	Bollinger Canyon Rd Widening from Alcosta Blvd to Dougherty Rd	Amend in new project	2015	$ 4,670,000
Contra Costa	City of San Ramon	CC-090022	230307	Widen Camino Tassajara Road from Windemere Parkway to the Alameda/Contra Costa Countyline	Amend in new project	2013	$ 13,020,000
Contra Costa	City of San Ramon	CC-090019	22613	Bollinger Canyon Road Widening (Alcosta to SRVB)	Amend in new project	2012	$ 21,900,000
Contra Costa	Contra Costa County	CC-090024	98134	Dougherty Rd Widening from Red Willow to Contra Costa County Line	Amend in new project	2012	$ 47,755,000
Marin County							
Marin	MCTD	MRN090001	230252	Expand Marin County local bus service	Amend in new project	2010	$ 10,000,000
Marin	TAM	MRN090002	21030	Improve U.S. 101/I-580 interchange (project approval and environmental design phases only)	Amend in new project	2015	$ 11,000,000
Marin	TAM	MRN090003	21315	Signalize ramp intersections at U.S. 101/Miller Creek Road interchange	Amend in new project	2012	$ 1,200,000

County	Sponsor	TIP ID	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Marin	TAM	MRN090004	22437	Construct auxilliary lanes at various locations along U.S. 101	Amend in new project	2012	$ 5,000,000
Marin	TAM	MRN090005	22753	Construct park-and-ride lots to support regional express bus service	Amend in new project	2011	$ 5,000,000
Marin	TAM	MRN090006	98179	Improve U.S. 101/Tiburon Boulevard interchange	Amend in new project	2012	$ 20,000,000
Marin	TAM	MRN090007	230060	Implement Transit Priority Measures (TPM) on major transit corridors	Amend in new project	2012	$ 27,300,000
Marin	TAM	MRN090008	230418	Rehabilitate major roads of countywide significance	Amend in new project	2015	$ 30,000,000
Marin	TAM	MRN090009	230431	Intermodal Transit Hubs	Amend in new project	2011	$ 11,000,000
Marin	TAM	MRN090010	230549	Implement local arterial improvements parallel to U.S. 101	Amend in new project	2012	$ 10,000,000
Marin	TAM	MRN050034	230701	US 101 HOV Lanes - Marin-Sonoma Narrows (Marin)	Increase costs to match the RTP-2035 Funding amount	2015	$ 372,700,000
Regional							
MTC	Caltrans	REG090003	230419	Freeway Performance Initiative - Phase 1	Amend in new project	2015	$ 222,000,000
San Francisco County							
San Francisco	SFCTA	SF-090011	230517	Oakdale Caltrain Station	Amend in new project	2012	$ 50,000,000
San Francisco	SFCTA	SF-991030	94089, 98102	US 101 Doyle Drive Replacement	Amend scope to remove 'Tolling facilities' and project costs	2015	$ 954,847,000
San Francisco	SFDPW	SF-010038	21549	Bayview Transportation Improvements	Amend in CON phase	2015	$ 126,000,000
San Francisco	SFDPW	SF-090002	21549	Arterial Harney/Jamestown to Crisp	Amend in new project	2015	$ 57,000,000
San Francisco	SFDPW	SF-090007	21549	Widen Cesar Chavez/Evans structure	Amend in new project	2015	$ 17,000,000
San Francisco	SFDPW	SF-090008	21549	Widen Illinois Street Bridge over Islais Creek	Amend in new project	2015	$ 25,000,000
San Francisco	SFDPW	SF-090004	230490	Widen Harney Way	Amend in new project	2012	$ 22,000,000
San Francisco	SFDPW	SF-090006	230517	BRT-Ped-Bike Bridge over Yosemite Slough	Amend in new project	2012	$ 58,000,000

County	Sponsor	TIP ID	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
San Francisco	SFDPW	SF-090010	230517	US 101 Aux Lanes Southbound from Silver to San Mateo County Line & Northbound from County Line to I-280 North interchange	Amend in new project	2015	$ 48,000,000
San Francisco	SFDPW	SF-090009	230581	Hunters Point Shipyard Ferry Terminal	Amend in new project	2012	$ 20,000,000
San Francisco	SFMTA	SF-090012	22412	Additional Light Rail Vehicles to Expand Muni Rail Service	Amend in new project	2015	$ 44,473,000
San Francisco	SFMTA	SF-090013	22982	Geneva/Harney Limited/Express Bus Service	Amend in new project	2012	$ 28,000,000
San Francisco	SFMTA	SF-090003	98593	Traffic Signals and Management Center	Amend in new project	2012	$ 54,000,000
San Francisco	SFMTA	SF-090005	98593	Palou Transit Preferential Streets Corridor	Amend in new project	2012	$ 22,000,000
San Francisco	SFMTA	SF-090020	230207	Geneva-Harney BRT to Hunters Point - Geneva Extension Portion	Amend in new project	2015	$ 34,000,000
San Francisco	SFMTA	SF-090021	230207	Geneva-Harney BRT to Hunters Point - Geneva Portion	Amend in new project	2012	$ 53,000,000
San Francisco	SFMTA	SF-090023	230207	Geneva-Harney BRT to Hunters Point - Harney Way Portion	Amend in new project	2015	$ 178,000,000
San Francisco	SFMTA	SF-090022	230215	Trolley Coach Extension Program	Amend in new project	2015	$ 5,560,000
San Francisco	SFMTA	SF-090015	230517	Transit Center in Candlestick Point	Amend in new project	2012	$ 6,000,000
San Francisco	SFMTA	SF-090016	230517	Transit Center in Hunters Point	Amend in new project	2012	$ 22,000,000
San Francisco	SFMTA	SF-090017	230517	Express/Limited Bus Service into Hunters Point (north alignment)	Amend in new project	2020	$ 22,000,000
San Francisco	SFMTA	SF-090018	230517	Oakdale-Palou Interim High-Capacity Bus Corridor	Amend in new project	2012	$ 23,000,000
San Francisco	SFMTA	SF-090019	230517	Extended Trolleybus Service into Hunters Point	Amend in new project	2014	$ 51,000,000
San Francisco	WETA	SF-090014	22512	Ferry Infrastructure for Service between Treasure Island and San Francisco	Amend in new project	2012	$ 57,130,000
San Mateo County							
San Mateo	Brisbane	SM-090004	22756	US 101/Candlestick Interchange	Amend in new project	2015	$ 15,000,000
San Mateo	Caltrain	SM-090021	21626	Caltrain grade separation program	Amend in new project	2009	$ 165,000,000
San Mateo	Foster City	SM-090005	230434	Triton Drive Widening	Amend in new project	2011	$ 850,000
San Mateo	Foster City	SM-090006	230704	State Route 92/Chess Drive - Ramp Widening Project	Amend in new project	2015	$ 2,500,000

County	Sponsor	TIP ID	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
San Mateo	Redwood City	SM-090007	230428	Blomquist Street Extension	Amend in new project	2013	$ 5,000,000
San Mateo	San Carlos	SM-090008	230417	US101/Holly Interchange modification	Amend in new project	2012	$ 3,000,000
San Mateo	SMCTA	SM-090009	21604	US 101 Aux lanes from Sierra Point to SF County Line	Amend in new project	2014	$ 6,000,000
San Mateo	SMCTA	SM-090016	21610	US 101 Aux lanes from San Bruno Ave to Grand Ave	Amend in new project	2015	$ 46,000,000
San Mateo	SMCTA	SM-090013	21613	Improve Rte 92 from SM Bridge to I-280	Amend in new project	2015	$ 80,000,000
San Mateo	SMCTA	SM-090010	21615	Reconstruct I-280/Route 1 interchange	Amend in new project	2015	$ 83,900,000
San Mateo	SMCTA	SM-090011	21892	Widen Woodside Rd from 4 to 6 lanes between ECR and Broadway	Amend in new project	2014	$ 6,650,000
San Mateo	SMCTA	SM-090012	22261	Replace San Pedro Creek Bridge over Hwy 1	Amend in new project	2014	$ 2,700,000
San Mateo	SMCTA	SM-090014	22282	Improve US 101 operations near Rte 92	Amend in new project	2015	$ 20,000,000
San Mateo	SMCTA	SM-090015	22751	Operations and safety improvement of Rte 1 in Half Moon Bay	Amend in new project	2015	$ 10,000,000
San Mateo	SMCTA	SM-090003	94644	Construct westbound slow vehicle lane on Route 92 from Route 35 to I-280	Amend in new project	2015	$ 57,500,000
Santa Clara County							
Santa Clara	San Jose	SCL090005	230201	Coleman Avenue Widening from 4 to 6 lanes from I-880 to Taylor Street	Amend in new project	2010	$ 13,000,000
Santa Clara	San Jose	SCL090003	230449	Charcot Avenue Extension over I-880	Amend in new project	2011	$ 34,000,000
Santa Clara	San Jose	SCL090004	230452	Downtown Couplet Conversion Projects	Amend in new project	2010	$ 22,000,000
Santa Clara	San Jose	SCL090006	230457	Oakland Road Improvements	Amend in new project	2012	$ 10,000,000
Santa Clara	San Jose	SCL090008	230644	Miscellaneous Intersection Improvements	Amend in new project	2012	$ 29,000,000
Santa Clara	San Jose	SCL090007	230645	Improvements to the North First Street Core area grid	Amend in new project	2012	$ 61,000,000
Santa Clara	Santa Clara County	SCL090018	21749	Butterfield Boulevard Extension from Tennant Avenue to Watsonville Road	Amend in new project	2014	$ 18,800,000
Santa Clara	Santa Clara County	SCL090014	22175	Almaden Expressway Widening from Coleman to Blossom Hill	Amend in new project	2015	$ 10,500,000
Santa Clara	Santa Clara County	SCL090013	22179	Central Expressway between Lawrence and San Tomas	Amend in new project	2014	$ 13,600,000
Santa Clara	Santa Clara County	SCL070049	22180	Construct auxilliary lanes on Central Expressway between Lawrence Expressway and Mary Avenue	Amend in CON phase and CON phase costs	2014	$ 17,000,000
Santa Clara	Santa Clara County	SCL090012	22843	Lawrence Expressway Widening from Moorpark/Bollinger to South of Calvert	Amend in new project	2011	$ 5,200,000
Santa Clara	Santa Clara County	SCL090011	22925	Realign existing curve on DeWitt Avenue between Edmunson and Spring	Amend in new project	2015	$ 2,500,000
Santa Clara	Santa Clara County	SCL090010	230267	Montague Expressway widening between Lick Mill and Trade Zone	Amend in new project	2014	$ 13,500,000

County	Sponsor	TIP ID	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Santa Clara	Santa Clara County	SCL090009	230269	Montague Expressway & Trimble Interchange Improvements	Amend in new project	2015	$ 32,000,000
Santa Clara	Santa Clara County	SCL090017	230273	Montague Expressway widening between Trade Zone and Park Victoria	Amend in new project	2015	$ 13,000,000
Santa Clara	Santa Clara County	SCL090016	230294	Conduct Environmental and Design to Widen and Create a New Alignment for Route 152	Amend in new project	2012	$ 10,615,000
Santa Clara	VTA	SCL070003	21714	SR 25/Santa Teresa Boulevard/US 101 I/C	Update project Costs	2015	$ 233,000,000
Santa Clara	VTA	SCL090025	21722	US 101 SB Trimble Road/De La Cruz Boulevard/Central Expressway Interchange	Amend in new project	2014	$ 34,000,000
Santa Clara	VTA	BRT030001	21921	BART - Warm Spring to San Jose Extension	Amend in CON phase and CON phase costs	2018	$ 7,587,000,000
Santa Clara	VTA	SCL090019	21922	San Jose International Airport People Mover	Amend in new project	2015	$ 512,000,000
Santa Clara	VTA	SCL090024	22145	Widen WB SR 237 on ramp from SR 237 to NB US 101 to 2 lanes and add Aux lane on NB US 101 from SR 237 on ramp to Ellis Street I/C	Amend in new project	2015	$ 9,000,000
Santa Clara	VTA	SCL090021	22156	SR 85 NB to SR 237 EB Connector Ramp Improvements	Amend in new project	2013	$ 26,000,000
Santa Clara	VTA	SCL070004	22965	US 101/ Mabury Road Interchange Improvements	Amend in CON phase and CON phase costs	2013	$ 20,000,000
Santa Clara	VTA	SCL090029	230257	SR 237/I-880 Express Connectors	Amend in new project	2010	$ 6,951,000
Santa Clara	VTA	SCL090027	230262	US 101/Montague Expressway Interchange	Amend in new project	2015	$ 12,000,000
Santa Clara	VTA	SCL090015	230363	I-880/Montague Expressway I/C Improvements	Amend in new project	2015	$ 58,000,000
Santa Clara	VTA	SCL090028	230407	SR 17 SB/Hamilton Avenue off ramp Widening	Amend in new project	2010	$ 1,000,000
Santa Clara	VTA	SCL070024	230531	US 101 HOV/Aux Lanes - SR 85 to SM County Line	Amend scope of project to include "HOV/Aux"	2015	$ 102,300,000
Santa Clara	VTA	SCL090023	230532	SR 237/North First Street Interchange Improvements	Amend in new project	2015	$ 2,000,000
Santa Clara	VTA	SCL090022	230574	SR 85/Cottle Road Interchange Improvements	Amend in new project	2012	$ 5,000,000
Santa Clara	VTA	SCL090030	230674	SR 85 Express Lane	Amend in new project	2014	$ 60,800,000
Santa Clara	VTA	SCL090020	230705	SR 87/Capitol/Narvaez Interchange Improvements	Amend in new project	2015	$ 10,000,000
Solano County							
Solano	STA	SOL090003	230322	EB I-80 Cordelia Truck Scales Relocation Project	Amend in new project	2016	$ 100,900,000
Solano	Vacaville	SOL090001	230708	I-505/Vaca Valley Off-Ramp and Intersection Improvements	Amend in new project	2016	$ 1,800,000
Solano	Vacaville	SOL090002	230708	Davis Street Widening Project	Amend in new project	2016	$ 1,530,000

County	Sponsor	TIP ID	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Sonoma County							
Sonoma	Petaluma	SON090003	22195	Improve U.S. 101/Old Redwood Highway interchange	Amend in new project	2015	$ 27,000,000
Sonoma	Santa Rosa	SON090004	22207	Farmers Lane Extension	Amend in new project	2012	$ 36,400,000
Sonoma	Santa Rosa	SON090006	230437	Mendocino Avenue ITS Improvements	Amend in new project	2009	$ 1,100,000
Sonoma	SCTA	SON090005	22191	Airport OC/IC- US 101	Amend in new project	2013	$ 46,700,000
Sonoma	SCTA	SON070004	230701	US 101 Marin/Sonoma Narrows (Sonoma)	Increase costs to match the RTP-2035 Funding amount	2015	$ 372,700,000
Sonoma	SCTA	SON010024	21902, 230698	Son 101 HOV - Redwood Hwy to Rohnert Park Expwy	Amend scope and update project costs	2012	$ 125,825,000
Sonoma	Sonoma County	SON090002	22001	Sonoma Marin Area Rail Transit District (SMART) commuter rail project (Larkspur to Cloverdale)	Amend in new project	2012	$ 646,000,000
Sonoma	Sonoma County	SON090001	22490	Widening four Sonoma County Bridges from One-lane to Two-lane	Amend in new project	2015	$ 2,000,000
					Grand Total		**$ 15,999,096,000**

Appendix B
List of Projects in the Transportation 2035 Plan

Appendix B: Transportation 2035 Projects (sorted by County, then by Reference Number)

Reference Number	Investment*	Project/Program	Complete and Operational By			2009 Reg'l TIP/ #09-06**	Signif.
			2015	2025	2035		
Bay Area Region/Multi-County							
21002	Committed	Implement Freeway Service Patrol, Call Box, and Incident Management Programs (includes incident detection equipment and incident management systems)	☐	☐	☑	☐	☐
21005	Committed	Fund and implement TransLink®	☐	☐	☑	☐	☐
21006	Committed	Fund and implement Regional Transportation Marketing program	☐	☐	☑	☐	☐
21008	Committed	Fund and implement 511 Traveler Information	☐	☐	☑	☐	☐
21011	New Commitment	Transportation for Livable Communities (TLC): provide planning and capital funds to improve pedestrian, bicycle and transit access; and support station development areas and FOCUS Priority Development Areas (PDAs)	☐	☐	☑	☐	☐
21012	New Commitment	Golden Gate Bridge seismic retrofit (completes Phase 3)	☑	☐	☐	☐	☐
21013	Committed	Rehabilitate state-owned toll bridges in the Bay Area	☐	☐	☑	☐	☐
21015	Committed	Fund Toll Bridge Seismic Retrofit Program	☑	☐	☐	☐	☐
21017	New Commitment	Small transit operators in Alameda, Contra Costa, Marin, Napa, Solano and Sonoma counties – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☐	☐	☑	☐	☐
21154	New Commitment	Procure buses for AC Transit transbay, express and local services	☐	☑	☐	☐	☐
21320	Committed	Construct Golden Gate Bridge moveable median barrier	☑	☐	☐	☐	☐
21342	Committed	Extend Caltrain to Transbay Terminal and replace Transbay Terminal, including the construction of the new Transbay Transit Center Building and rail foundation (Phase 1)	☑	☐	☐	☐	☑
21618	Committed	Implement commuter rail service on the Dumbarton Bridge (environmental, design and right-of-way phases)	☑	☐	☐	☐	☐
21619	Committed	Expand Caltrain Express service: design and implement safety elements related to signal communication and positive train control (Phase 2a)	☑	☐	☐	☐	☐
21627	Committed	Electrify Caltrain from Tamien to San Francisco (includes installation of power substations and other infrastructure)	☑	☐	☐	☐	☑
22001	Committed	Implement Sonoma Marin Area Rail Transit District (SMART) commuter rail project (includes environmental, engineering, right-of-way, construction, vehicle procurement and operations)	☑	☐	☐	☑	☑
22003	Committed	Capitol Corridor: Phase 2 enhancements (includes grade separations at High Street, Davis Street and Hesperian Street)	☐	☑	☐	☐	☑

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** Projects amended into the 2009 TIP Amendment #09-06

Reference Number	Investment*	Project/Program	Complete and Operational By			2009 Reg'l TIP/ Signif. #09-06**	
			2015	2025	2035		
Bay Area Region/Multi-County							
22006	Committed	Improve ferry facilities/equipment including the Downtown Ferry Terminal and procuring additional spare ferry vessels	☑	☐	☐	☐	☐
22008	Committed	Extend Caltrain to Transbay Terminal and replace Transbay Terminal, including preliminary engineering; environmental; planning, specifications, and estimate (PS&E); and right-of-way phases of downtown extension (Phase 2a)	☑	☐	☐	☐	☐
22009	Committed	Implement Capitol Corridor intercity rail service (includes increased track capacity, rolling stock and frequency improvements)	☑	☐	☐	☐	☑
22240	Committed	Fund Regional Measure 2 Express Bus South improvements (includes park-and-ride lots, HOV access improvements and rolling stock)	☑	☐	☐	☐	☑
22241	Committed	Fund Regional Measure 2 studies (Water Emergency Transportation Authority environmental studies, I-680/Pleasant Hill BART Connector Study)	☑	☐	☐	☐	☐
22243	Committed	Fund Regional Measure 2 Express Bus North improvements (includes park-and-ride lots and rolling stock)	☐	☐	☑	☐	☑
22244	Committed	Fund City CarShare	☑	☐	☐	☐	☐
22245	Committed	Fund Safe Routes to Transit	☐	☐	☑	☐	☐
22247	New Commitment	Regional Bicycle Program: provide capital funds to fully build out the Regional Bikeway Network as defined in MTC's Regional Bicycle Plan for the San Francisco Bay Area, 2009 Update	☐	☐	☑	☑	☐
22423	New Commitment	Lifeline Transportation Program: fund programs and services that address transportation gaps specific to low-income communities	☐	☐	☑	☐	☐
22425	New Commitment	Planning funds for the Metropolitan Transportation Commission, Association of Bay Area Governments, Bay Conservation and Development Commission, and nine county congestion management agencies	☐	☐	☑	☐	☐
22481	New Commitment	Caltrain – transit operating and capital improvement program (including replacement, rehabilitation and system enhancements for rolling stock, equipment, fixed facilities and other capital assets); station improvements (e.g., platforms) are included	☐	☐	☑	☐	☐
22520	Committed	Implement BART earthquake safety program	☑	☐	☐	☐	☐
22636	Committed	Implement BART transbay tube earthquake safety improvements (Phase 1)	☑	☐	☐	☐	☐
22676	New Commitment	Improve passenger capacity at 43 BART stations, including platform modifications and faregate, stair, elevator and escalator additions	☐	☐	☑	☐	☐
22765	New Commitment	Improve the connection between I-580 and I-680 via HOV direct connectors	☑	☐	☐	☑	☑

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** Projects amended into the 2009 TIP Amendment #09-06

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			2015	2025	2035		
Bay Area Region/Multi-County							
22991	Committed	Widen I-680 southbound in Santa Clara and Alameda counties from Route 237 to Route 84 including an express lane, ramp metering, auxiliary lanes and pavement rehabilitations	☑	☐	☐	☐	☑
94089	New Commitment	Reconstruct south access to the Golden Gate Bridge, from Doyle Drive to Broderick Street (design and construction phases)	☑	☐	☐	☑	☑
94152	Committed	Widen Route 12 (Jamieson Canyon) from 2 lanes to 4 lanes from I-80 in Solano County to Route 29 in Napa County (Phase 1)	☑	☐	☐	☐	☑
94525	New Commitment	BART– transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements, equipment, fixed facilities and other capital assets)	☐	☐	☑	☐	☐
94526	New Commitment	AC Transit – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☐	☐	☑	☐	☐
94527	Committed	Livermore Amador Valley Transit Authority (LAVTA) – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☐	☐	☑	☐	☐
94541	Committed	Reconstruct existing Benicia-Martinez Bridge for southbound traffic	☑	☐	☐	☐	☑
94558	Committed	Central Contra Costa Transit Authority (CCCTA) – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☐	☐	☑	☐	☐
94572	New Commitment	Golden Gate Transit – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☐	☐	☑	☐	☐
94610	New Commitment	Valley Transportation Authority (VTA) – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☐	☐	☑	☐	☐
94636	New Commitment	San Francisco Municipal Transportation Agency (Muni) – transit operating and capital improvement program (including replacement, rehabilitation and other minor enhancements for rolling stock, equipment, fixed facilities and other capital assets, does not include system expansion)	☐	☐	☑	☐	☐
94666	New Commitment	SamTrans – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☐	☐	☑	☐	☐

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			2015	2025	2035		
Bay Area Region/Multi-County							
94683	Committed	Vallejo Transit – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☐	☐	☑	☐	☐
98102	Committed	Reconstruct the South Access to the Golden Gate Bridge: Doyle Drive (environmental study)	☑	☐	☐	☐	☐
230221	Committed	Implement I-80 Integrated Corridor Mobility (ICM) project operations and management	☐	☐	☑	☐	☑
230222	Committed	Implement San Pablo Avenue SMART Corridors operations and management	☐	☐	☑	☐	☑
230257	New Commitment	Convert HOV direct connectors between I-880 and Route 237 to express lane direct connectors	☑	☐	☐	☑	☑
230287	New Commitment	Implement the Bay Area Air Quality Management District's Goods Movement Emission Reduction Project (includes replacement or retrofitting of up to 800 port and general goods movement trucks in the region)	☐	☐	☑	☐	☐
230290	Committed	Extend Caltrain to Transbay Terminal and replace Transbay Terminal, including construction phase (Phase 2b)	☐	☑	☐	☐	☑
230336	Committed	Implement recommendations from MTC's Transit Connectivity Plan	☐	☐	☑	☐	☐
230419	New Commitment	Freeway Performance Initiative (FPI): maximize freeway performance and reliability using primarily technology and limited expansions at essential locations; includes Traffic Operations System (TOS) infrastructure, TOS maintenance and replacement, arterial coordination and management, and performance monitoring	☐	☐	☑	☑	☑
230550	New Commitment	Transportation Climate Action Campaign: implement a five-year campaign to reduce greenhouse gas emissions; includes funding for a comprehensive outreach and education campaign, Safe Routes to School, Safe Routes to Transit, and Transit Priority Measures	☐	☐	☑	☐	☐
230649	Committed	High-Speed Rail: fund supporting infrastructure for ACE, BART, Caltrain, MUNI and VTA	☐	☐	☑	☐	☐
230654	New Commitment	Route 4 in Contra Costa County from Route 160 to Port Chicago Highway – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230656	New Commitment	I-80 in Alameda County from Alameda-Contra Costa County line to Bay Bridge — convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230657	New Commitment	I-80 in Contra Costa County from Carquinez Bridge to Alameda-Contra Costa County line – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230658	New Commitment	I-80 in Solano County from Route 37 to Carquinez Bridge – widen to add an express lane in each direction	☑	☐	☐	☐	☑

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			2015	2025	2035		
Bay Area Region/Multi-County							
230659	New Commitment	I-80 in Solano County from Yolo County line to Route 37 – widen to add an express lane in each direction from Yolo County line to Air Base Parkway and from Red Top Road to Route 37	☑	☐	☐	☐	☑
230660	New Commitment	I-80 in Solano County from Red Top Road to Air Base Parkway – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230661	New Commitment	U.S. 101 in Santa Clara County from Cochrane Road to Route 25 – widen to add an express lane in each direction	☑	☐	☐	☐	☑
230662	New Commitment	U.S. 101 in Santa Clara County from San Mateo/Santa Clara County line to Cochrane Road – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230663	New Commitment	U.S. 101 in San Mateo County from San Mateo/Santa Clara County line to Whipple Avenue – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230664	New Commitment	U.S. 101 in San Mateo County from Whipple Avenue to Millbrae – widen to add an express lane in each direction	☑	☐	☐	☐	☑
230665	New Commitment	I-580 westbound in Alameda County from Foothill Road to San Joaquin County line – widen to add an express lane and convert HOV lane to express lane	☑	☐	☐	☑	☑
230666	New Commitment	I-580 eastbound in Alameda County from Foothill Road to San Joaquin County line – widen to add an express lane	☑	☐	☐	☐	☑
230667	New Commitment	I-580 eastbound in Alameda County from Foothill Road to Greenville Road – convert HOV lane to express lane	☑	☐	☐	☐	☑
230668	New Commitment	I-880 in Santa Clara County from Alameda-Santa Clara County line to U.S. 101 – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230669	New Commitment	I-880 in Alameda County from Alameda-Santa Clara County line to Marina Boulevard/Lewelling Boulevard – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230670	New Commitment	I-880 in Alameda County from Marina Boulevard/Lewelling Boulevard to Hegenberger Road – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230671	New Commitment	I-880 northbound in Alameda County from 16th Avenue to Bay Bridge Toll Plaza – convert HOV lane to express lane	☑	☐	☐	☐	☑
230672	New Commitment	Route 92 westbound in Alameda County from Clawiter Road through San Mateo-Hayward Bridge toll plaza – convert HOV lane to express lane	☑	☐	☐	☐	☑
230673	New Commitment	Route 84 westbound in Alameda County from I-880 through Dumbarton Bridge toll plaza – convert HOV lane to express lane	☑	☐	☐	☐	☑
230674	New Commitment	Route 85 in Santa Clara County from U.S. 101 in Mountain View to U.S. 101 in South San Jose – convert HOV lanes to express lanes	☑	☐	☐	☑	☑
230675	New Commitment	Route 87 in Santa Clara County from Route 85 to U.S. 101 – convert HOV lanes to express lanes	☑	☐	☐	☐	☑

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			2015	2025	2035		
Bay Area Region/Multi-County							
230676	New Commitment	Route 237 in Santa Clara County from I-880 to Mathilda Avenue – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230677	New Commitment	Route 237 in Santa Clara County from Mathilda Avenue to Route 85 – widen to add an express lane in each direction	☑	☐	☐	☐	☑
230678	New Commitment	I-280 in Santa Clara County from Magdalena Avenue to Leland Avenue – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230679	New Commitment	I-280 in Santa Clara County from Leland Avenue to U.S. 101 – widen to add an express lane in each direction	☑	☐	☐	☐	☑
230680	New Commitment	I-680 in Santa Clara County from Calaveras Road to U.S. 101 – widen to add an express lane in each direction	☑	☐	☐	☐	☑
230681	New Commitment	I-680 northbound in Santa Clara County from Calaveras Boulevard to Alameda County line – widen to add an express lane	☑	☐	☐	☐	☑
230682	New Commitment	I-680 northbound in Alameda County from Santa Clara County line to Route 84 – widen to add an express lane	☑	☐	☐	☐	☑
230683	New Commitment	I-680 in Alameda County from Route 84 to Alcosta Boulevard – widen to add an express lane in each direction	☑	☐	☐	☐	☑
230684	New Commitment	I-680/I-580 interchange in Alameda County – widen to add an express lane direct connector and an express lane on I-580 eastbound to Tassajara Road	☑	☐	☐	☐	☑
230685	New Commitment	I-680 in Contra Costa County from Alcosta Road to Benicia-Martinez Bridge – widen to add an express lane in each direction through Walnut Creek and convert HOV lanes to express lanes on the remaining segment	☑	☐	☐	☐	☑
230686	New Commitment	I-680 in Solano County from Benicia-Martinez Bridge to I-80 – widen to add an express lane in each direction	☑	☐	☐	☐	☑
230687	New Commitment	I-680/I-80 interchange in Solano County – widen to add an express lane direct connector	☑	☐	☐	☐	☑
230688	New Commitment	U.S. 101 in Marin County from Corte Madera to Route 37 – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230689	New Commitment	U.S. 101 in Sonoma County from Windsor River Road to Old Redwood Highway – widen to add an express lane in each direction and convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230690	New Commitment	I-680/Route 4 interchange in Contra Costa County – widen to add express lane direct connectors at interchange	☑	☐	☐	☐	☑
230701	New Commitment	Widen U.S. 101 (adding an HOV lane in each direction) from Route 37 to Marin/Sonoma County line (Marin County portion) and from Marin/Sonoma County line to Old Redwood Highway in Petaluma	☑	☐	☐	☑	☑

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			2015	2025	2035		
Bay Area Region/Multi-County							
230702	New Commitment	U.S. 101 in Marin and Sonoma counties from Route 37 to Old Redwood Highway – convert HOV lanes to express lanes	☑	☐	☐	☐	☑
230703	New Commitment	With net toll revenue, fund corridor improvements including transit operating and capital needs, freeway operations, interchanges, roadway maintenance and local access	☐	☐	☑	☑	☑
230710	Committed	Funding reserve to implement High-Speed Rail and related corridor improvements	☐	☐	☑	☐	☐
230712	Committed	Install suicide barrier on Golden Gate Bridge	☑	☐	☐	☐	☐

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Reference Number	Investment*	Project/Program	Complete and Operational By			2009 TIP/ #09-06**	Reg'l Signif.
			2015	2025	2035		
Alameda							
21093	Committed	Upgrade Route 92/Clawiter Road interchange, add ramps and overcrossing for Whitesell Street extension, and signalize ramp intersections	☑	☐	☐	☑	☑
21100	New Commitment	Construct auxiliary lanes on I-580 between Vasco Road and First Street and modify I-580/Vasco Road interchange	☑	☐	☐	☐	☑
21101	Committed	Reconstruct Stargell Avenue from Webster Street to 5th Avenue	☑	☐	☐	☐	☐
21103	New Commitment	Construct grade separation structure on Central Avenue at Union Pacific Railroad crossing	☑	☐	☐	☐	☐
21105	Committed	Construct interchange at the extension of Isabel Avenue (Route 84) to I-580	☑	☐	☐	☐	☑
21112	New Commitment	Improve Crow Canyon Road by widening shoulders, realigning curves and constructing retaining walls	☐	☑	☐	☐	☐
21114	Committed	Construct grade separations on Washington Boulevard/Paseo Padre Parkway at the Union Pacific railroad tracks and proposed BART extension	☑	☐	☐	☐	☐
21116	Committed	Widen I-580 from Foothill Road to Greenville Road in both directions for HOV lanes (includes auxiliary lanes)	☑	☐	☐	☐	☑
21123	New Commitment	Expand Union City BART station to create intermodal rail station	☑	☐	☐	☑	☐
21125	Committed	Extend HOV lane westbound on Route 84 between Newark Avenue undercrossing and west of the I-880 interchange	☑	☐	☐	☐	☑
21126	Committed	Construct westbound Route 84 HOV on-ramp at Newark Boulevard	☑	☐	☐	☐	☑
21131	Committed	Build a BART Oakland Airport Connector between Coliseum BART station and Oakland International Airport	☑	☐	☐	☐	☑
21132	Committed	Extend BART from Fremont to Warm Springs	☑	☐	☐	☐	☑
21133	Committed	Construct new West Dublin/Pleasanton BART station along the I-580 median	☑	☐	☐	☐	☑
21139	New Commitment	Improve Vasco Road with safety features including realignment, widening and installation of median barriers	☑	☐	☐	☑	☐
21144	New Commitment	Reconstruct I-80/Gilman Avenue interchange into a roundabout	☑	☐	☐	☐	☑
21151	Committed	Construct a new satellite operations and maintenance facility for operations, dispatch, maintenance, fueling, bus wash and parking for LAVTA fixed route services	☑	☐	☐	☐	☐
21159	New Commitment	Expand/enhance AC Transit facilities in northern Alameda County, including new operating facility	☐	☑	☐	☐	☐
21451	New Commitment	Construct additional turn- and bus-loading lanes on Hesperian Boulevard and East 14th Street	☑	☐	☐	☐	☐

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** Projects amended into the 2009 TIP Amendment #09-06

Reference Number	Investment*	Project/Program	Complete and Operational By			2009 Reg'l TIP/ Signif. #09-06**	
			2015	2025	2035		
Alameda							
21455	Committed	Widen I-238 to 6 lanes between I-580 and I-880, including auxiliary lanes on I-880 between I-238 and A Street	☑	☐	☐	☐	☑
21456	Committed	Construct auxiliary lanes on I-580 between Santa Rita Road/Tassajara Road and Airway Boulevard	☑	☐	☐	☐	☑
21460	Committed	Construct bicycle/pedestrian roadway in existing Alameda County and Southern Pacific right-of-way between the Dublin/Pleasanton BART station and Dougherty Road; construct bus lane on Dougherty Road	☐	☑	☐	☐	☐
21464	Committed	Provide paratransit service for AC Transit, BART and non-mandated city programs to coordinate and close paratransit service gaps	☐	☐	☑	☐	☐
21465	Committed	Enhance transit throughout the county using transit center development funds	☐	☐	☑	☐	☐
21466	Committed	Improve Washington Avenue/Beatrice Street interchange at I-880 through reconstruction and widening of on/off ramps	☑	☐	☐	☐	☑
21472	Committed	Improve I-680/Bernal Avenue interchange	☑	☐	☐	☑	☑
21473	Committed	Construct a 4-lane arterial connecting Dublin Boulevard and North Canyons Parkway in Livermore	☐	☑	☐	☐	☑
21475	New Commitment	Improve I-580/First Street interchange in Livermore	☐	☑	☐	☑	☑
21477	New Commitment	Reconstruct I-580/Greenville Road interchange in Livermore	☐	☑	☐	☑	☑
21482	Committed	Extend Fremont Boulevard to connect with Dixon Landing Road in Milpitas	☑	☐	☐	☐	☐
21484	Committed	Widen Kato Road from Warren Avenue to Milmont Drive and include bicycle lanes	☑	☐	☐	☐	☐
21489	Committed	Improve I-580/San Ramon Road/Foothill Road interchange	☑	☐	☐	☑	☑
21992	New Commitment	Implement AC Transit transit priority measures (TPM) and corridor improvements (Element 1)	☐	☑	☐	☐	☑
22002	Committed	Extend I-880 northbound HOV lane from Maritime Street to the Bay Bridge toll plaza	☑	☐	☐	☐	☑
22007	Committed	Implement bicycle and pedestrian projects/programs in Alameda County	☐	☐	☑	☐	☐
22013	Committed	Construct I-580 eastbound truck climbing lane at the Altamont Summit	☑	☐	☐	☑	☑
22021	New Commitment	Expand AC Transit transfer centers and park-and-ride facilities in central Alameda County	☐	☑	☐	☐	☐
22056	Committed	Improve Ashby BART station to support Ed Roberts Campus and future transit-oriented development	☑	☐	☐	☐	☐

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			2015	2025	2035		
Alameda							
22062	Committed	Construct infrastructure to support future Irvington BART station	☑	☐	☐	☐	☐
22063	Committed	Improve Route 238 corridor near Foothill Boulevard/I-580 by removing parking during peak periods and spot widening	☑	☐	☐	☐	☐
22082	Committed	Correct grade separation at 7th Street/Union Pacific Railroad entry at Port of Oakland intermodal yards and improve connecting roadways through former Oakland Army Base	☑	☐	☐	☑	☐
22084	New Commitment	Improve access to Oakland International Airport's North Field, connecting Route 61 (Doolittle Drive) with Earhart Road and extending infield area at North Field	☑	☐	☐	☐	☑
22087	Committed	Reconstruct I-880/Oak Street on-ramp	☑	☐	☐	☐	☐
22089	Committed	Improve Martinez Subdivision for freight and passenger rail	☑	☐	☐	☑	☑
22100	Committed	Replace overcrossing structure at I-880/Davis Street interchange and add additional travel lanes on Davis Street (includes ramp, intersection and signal improvements)	☑	☐	☐	☐	☑
22106	Committed	Construct street extensions in Hayward near Clawiter and Whitesell streets	☑	☐	☐	☐	☐
22455	Committed	Implement Bus Rapid Transit service on the Telegraph Avenue/International Boulevard/E. 14th Street corridor	☑	☐	☐	☐	☑
22509	Committed	Provide ferry service between Alameda/Oakland and San Francisco and between Harbor Bay and San Francisco	☑	☐	☐	☐	☑
22511	Committed	Provide ferry service between Berkeley/Albany and San Francisco	☑	☐	☐	☐	☑
22670	Committed	Construct HOV lane for southbound I-880 from Hegenberger Road to Marina Boulevard (includes reconstructing bridges at Davis Street and Marina Boulevard)	☑	☐	☐	☐	☑
22760	Committed	Relocate the Outer Harbor Intermodal Terminal (OHIT) to the former Oakland Army Base (includes rail yard, storage tracks, lead tracks, truck gates and administrative/operations and maintenance buildings)	☑	☐	☐	☑	☐
22766	New Commitment	Assess Fruitvale Avenue rail bridge for seismic retrofit	☑	☐	☐	☑	☐
22768	New Commitment	Retrofit and repair three Oakland-Alameda Estuary bridges for seismic safety	☑	☐	☐	☑	☐
22769	New Commitment	Improve northbound I-880 ramp geometries at 23rd and 29th avenues (includes modifications to local streets, landscaping and soundwall construction)	☐	☑	☐	☐	☐
22770	Committed	Install traffic signal on Grand Avenue at Rose Avenue/Arroyo Avenue in Piedmont	☑	☐	☐	☐	☑

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			2015	2025	2035		
Alameda							
22776	New Commitment	Widen Route 84 from 2 to 4 lanes from north of Pigeon Pass to Stanley Boulevard and from 2 to 6 lanes from Stanley Boulevard to Jack London Boulevard	☑	☐	☐	☐	☑
22777	Committed	Reconstruct on/off-ramps on I-580 in Castro Valley	☑	☐	☐	☐	☑
22779	Committed	Reconstruct Route 262/I-880 interchange and widen I-880, including grade separation at Warren Avenue and the Union Pacific Railroad (Phase 2)	☑	☐	☐	☐	☑
22780	Committed	Implement Bus Rapid Transit on the Grand-MacArthur corridor	☑	☐	☐	☑	☑
22783	New Commitment	Assess Fruitvale Avenue roadway bridge for seismic retrofit	☑	☐	☐	☑	☐
94012	Committed	Implement the Union City BART station transit-oriented development project, including construction of pedestrian grade separations under the BART and Union Pacific Railroad tracks and reconfiguring existing station to provide multimodal loop road (Phase 1)	☑	☐	☐	☐	☐
94030	Committed	Reconstruct I-880/Route 262 interchange and widen I-880 from 8 lanes to 10 lanes (8 mixed-flow and 2 HOV lanes) from Route 262 (Mission Boulevard) to the Santa Clara County line (Phase 1)	☑	☐	☐	☐	☑
94506	New Commitment	Construct an improved east-west connection between I-880 and Route 238 (Mission Boulevard) from North Fremont to Union City	☑	☐	☐	☐	☑
94514	Committed	Reconstruct I-880/Route 92 interchange with direct connectors	☑	☐	☐	☐	☑
98139	Committed	Acquire right-of-way for ACE rail service between Stockton and Niles Junction, complete track improvements between San Joaquin County and Alameda County, and expand Alameda County station platforms	☑	☐	☐	☐	☐
98207	New Commitment	Improve I-880/Broadway-Jackson interchange in Oakland (includes new on- and off-ramps and new signals)	☐	☑	☐	☐	☑
98208	New Commitment	Construct soundwalls in various locations in Alameda County	☐	☐	☑	☐	☐
230047	New Commitment	Reconstruct I-880/West A Street interchange in Hayward (includes new sidewalks)	☐	☑	☐	☐	☑
230052	Committed	Construct auxiliary lanes on I-880 near Winton in Hayward	☑	☐	☐	☑	☑
230053	New Commitment	Reconstruct I-880 Industrial Parkway interchange (Phase 1)	☑	☐	☐	☐	☑
230054	Committed	Construct auxiliary lanes on I-880 at Industrial Parkway	☑	☐	☐	☑	☑
230057	Committed	Reconstruct I-880/Industrial Parkway interchange, including construction of new northbound I-880 on-ramp and modifications to southbound on-ramp to include an HOV lane (Phase 2)	☑	☐	☐	☐	☑
230066	Committed	Improve I-880/Marina Boulevard interchange (includes on- and off-ramp improvements, overcrossing modification, and street improvements)	☑	☐	☐	☑	☑

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			2015	2025	2035		
Alameda							
230083	Committed	Tri-Valley Transit Access: acquire right-of-way along I-580 from Hacienda Drive to the Greenville Road interchange to accommodate rail transit	☑	☐	☐	☐	☐
230086	New Commitment	Reconstruct I-580/Fallon Road interchange and I-580/Hacienda Drive interchange in Dublin	☐	☑	☐	☐	☑
230088	Committed	Extend existing northbound I-880 HOV lane from north of Hacienda Avenue to Hegenberger Road	☐	☑	☐	☐	☑
230091	Committed	Install traffic monitoring systems, signal priority and coordination, ramp metering, and HOV bypass lanes in the I-880, I-238 and I-580 corridors	☑	☐	☐	☑	☑
230094	Committed	Construct soundwalls in central Alameda County	☐	☐	☑	☐	☐
230099	New Commitment	Construct northbound I-680 to westbound I-580 connector	☐	☑	☐	☑	☑
230108	New Commitment	Widen I-80 eastbound Powell Street off-ramp in Emeryville	☑	☐	☐	☑	☑
230110	New Commitment	Construct a grade separation at Route 262/Warm Springs Drive/Mission Boulevard	☑	☐	☐	☐	☐
230114	New Commitment	Widen Auto Mall Parkway from 4 to 6 lanes between I-680 and I-880, including intersection improvements	☑	☐	☐	☐	☑
230116	New Commitment	Improve rail crossings in Berkeley, including grade separation at Gilman Street, road closures and at-grade crossing improvements (Phase 1)	☑	☐	☐	☐	☐
230120	New Commitment	Construct truck parking facilities in northern Alameda County (Phase 1)	☑	☐	☐	☑	☐
230122	New Commitment	Implement a Value-Pricing Parking and Transportation Demand Management program in Berkeley	☑	☐	☐	☐	☐
230125	New Commitment	Improve Ashby/I-80 interchange/Aquatic Park access, including streetscaping, bicycle/pedestrian improvements and minor interchange improvements	☑	☐	☐	☐	☐
230132	New Commitment	Improve I-580/Isabel Avenue interchange, including streetscaping and bicycle/pedestrian improvements	☐	☑	☐	☐	☐
230156	Committed	Extend West Jack London Boulevard from west of Isabel/Route 84 to El Charro Road	☑	☐	☐	☑	☐
230157	Committed	Construct a two-lane gap closure on Las Positas Road from Arroyo Vista to west of Vasco Road	☐	☑	☐	☐	☐
230160	Committed	Tri-Valley Transit Access: implement enhanced rapid bus service in Livermore, Dublin and Pleasanton (includes higher frequencies, new stops and improved stop amenities)	☑	☐	☐	☐	☑

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			2015	2025	2035		
Alameda							
230169	New Commitment	Provide Intelligent Transportation System (ITS) elements for arterial management in Oakland (includes new controllers, signal coordination, transit priority, automatic vehicle locators, speed and level of service monitoring through radar detection, and real time arrival information)	☐	☑	☐	☐	☐
230170	New Commitment	Improve access to I-880 from 42nd Avenue and High Street	☑	☐	☐	☐	☐
230171	New Commitment	Improve Route 24/Caldecott Tunnel including bicycle and transit access and soundwall improvements	☑	☐	☐	☐	☐
230198	New Commitment	Upgrade traffic signal systems with Intelligent Transportation System (ITS) elements (includes new controllers, improved system communication, facilities upgrades and relocations, emergency vehicle pre-emption, and improved speed and level of service monitoring)	☐	☑	☐	☐	☐
230244	New Commitment	Prepare supplemental project study report for Route 84 widening from Pigeon Pass to I-680	☑	☐	☐	☑	☐
230396	New Commitment	Implement recommendations from the Community-Based Transportation Plan to improve the mobility of low-income residents	☐	☑	☐	☐	☐
230412	New Commitment	Additional AC Transit and BART transit capital replacement	☐	☑	☐	☐	☐
230608	New Commitment	Construct a westbound auxiliary lane on I-580 between First Avenue and Isabel Avenue in the Tri-Valley area	☑	☐	☐	☑	☑
230630	Committed	Tri-Valley Transit Access: construct westbound off-ramp to connect I-580 to Dublin/Pleasanton BART station, or make other transit access improvements at the BART station	☑	☐	☐	☐	☑
230692	New Commitment	Local streets and roads maintenance	☐	☐	☑	☐	☐

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			2015	2025	2035		
Contra Costa							
21205	New Commitment	Improve the I-680/Route 4 interchange with direct connectors and widen Route 4 from 2 lanes to 3 lanes in each direction between Route 242 and Morello Avenue	☐	☑	☐	☐	☑
21206	Committed	Construct a fourth bore at the Caldecott Tunnel complex north of the three existing bores	☑	☐	☐	☐	☑
21207	Committed	Construct Martinez Intermodal Station, including site acquisition, demolition and construction of 200 interim parking spaces (Phase 3 initial segment)	☑	☐	☐	☐	☑
21208	Committed	Construct Richmond Parkway Transit Center, including signal timing and reconfiguration, parking facility and security improvements	☑	☐	☐	☑	☑
21209	Committed	Relocate and expand Hercules Transit Center, including relocation of park-and-ride facility and construction of express bus facilities	☑	☐	☐	☐	☑
21210	Committed	Construct Capitol Corridor train station in Hercules	☑	☐	☐	☐	☑
21211	Committed	Extend BART/East Contra Costa Rail (eBART) eastward from the Pittsburg/Bay Point BART station into eastern Contra Costa County	☑	☐	☐	☐	☑
21214	Committed	Widen Wilbur Avenue over Burlington Northern Santa Fe Railroad from 2 lanes to 4 lanes	☑	☐	☐	☐	☐
21225	Committed	Improve regional and local pedestrian and bicycle system, including construction overcrossings, and expanding sidewalks and facilities	☐	☑	☐	☐	☐
22122	Committed	Implement ferry service from Richmond to San Francisco	☑	☐	☐	☐	☑
22352	New Commitment	Improve I-680/Norris Canyon Road, including reconstruction of overcrossing, widening of median, construction of new HOV ramps and modifications to the local street network in San Ramon	☐	☑	☐	☑	☑
22353	Committed	Construct HOV lane on I-680 southbound between North Main Street and Livorna Road	☑	☐	☐	☐	☑
22354	New Commitment	Relocate the western half of the Marina Vista interchange off southbound I-680	☐	☑	☐	☐	☑
22355	New Commitment	Modify I-80/Central Avenue interchange	☑	☐	☐	☐	☑
22360	New Commitment	Reconstruct I-80/San Pablo Dam Road interchange and modify adjacent interchanges	☑	☐	☐	☑	☑
22365	Committed	Improve Martinez Ferry landside facilities	☑	☐	☐	☐	☐
22388	New Commitment	Construct Route 242 on-ramp and off-ramp at Clayton Road	☐	☑	☐	☐	☑
22390	New Commitment	Reconstruct Route 4/Willow Pass Road ramps in Concord to support new infill development at the Concord Naval Weapons Station	☐	☑	☐	☐	☑
22402	Committed	Implement the San Ramon School Bus Program, and continue the Lamorinda School Bus Program	☐	☐	☑	☐	☐

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			2015	2025	2035		
Contra Costa							
22600	Committed	Widen Somersville Road Bridge in Antioch from 2 lanes to 4 lanes	☑	☐	☐	☐	☐
22602	New Commitment	Construct I-680 auxiliary lanes in both directions from Sycamore Valley Road to Crow Canyon Road	☑	☐	☐	☐	☑
22603	Committed	Construct 6-level, roughly 785-space parking garage at Richmond Intermodal Transfer Station	☑	☐	☐	☐	☑
22607	Committed	Widen and extend major streets, and improve interchanges in east Contra Costa County	☐	☐	☑	☐	☐
22609	Committed	Widen and extend major streets, and improve interchanges in central Contra Costa County	☐	☐	☑	☐	☐
22610	Committed	Widen and extend major streets, and improve interchanges in west Contra Costa County	☐	☐	☑	☐	☐
22611	Committed	Implement a low-income student bus pass program in West Contra Costa County	☐	☐	☑	☐	☐
22613	Committed	Widen and extend major streets, and improve interchanges in southwest Contra Costa County (includes widening Camino Tassajara to 4 lanes between Danville and Windemere Parkway, and to 6 lanes from Windemere Parkway to Alameda County line)	☐	☐	☑	☑	☐
22614	New Commitment	Construct Martinez Intermodal Station, including an additional 425 parking spaces and vehicle and pedestrian bridges (Phase 3)	☑	☐	☐	☑	☑
22637	Committed	Construct BART crossover at Pleasant Hill BART station	☑	☐	☐	☐	☐
94045	Committed	Purchase new express buses for I-80 express service to be provided by AC Transit, Vallejo Transit and WestCAT (capital costs)	☐	☑	☐	☑	☑
94046	Committed	Improve interchanges and parallel arterials to Route 4	☐	☐	☑	☐	☐
94048	Committed	Improve interchanges and parallel arterials to I-80	☐	☐	☑	☐	☐
94532	Committed	Implement the Gateway Lamorinda Traffic Program (includes carpool lot in Lafayette, structural and safety improvements on Moraga Road, intersection realignments, turn lanes, pedestrian accommodation and signal coordination)	☑	☐	☐	☐	☐
94538	Committed	Implement the Route 4 transportation management system	☐	☑	☐	☐	☐
98115	Committed	Widen Ygnacio Valley/Kirker Pass roads from 4 lanes to 6 lanes from Michigan Boulevard to Cowell Road	☐	☑	☐	☑	☑
98126	Committed	Improve interchanges and arterials parallel to I-680 and Route 24	☐	☑	☐	☐	☐
98132	Committed	Widen and extend Bollinger Canyon Road to 6 lanes from Alcosta Boulevard to Dougherty Road	☐	☑	☐	☑	☑
98133	New Commitment	Widen Pacheco Boulevard from 2 to 4 lanes from Blum Road to Arthur Road	☐	☐	☑	☐	☑

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Contra Costa							
98134	Committed	Widen Dougherty Road to 6 lanes from Red Willow to Contra Costa County line	☐	☑	☐	☑	☑
98142	Committed	Widen Route 4 from 4 lanes to 8 lanes, with HOV lanes, from Loveridge Road to Somersville Road	☑	☐	☐	☐	☑
98157	Committed	Enhance AC Transit bus service in San Pablo corridor	☐	☑	☐	☑	☑
98193	Committed	Extend Panoramic Drive from North Concord BART station to Willow Pass Road	☐	☑	☐	☐	☐
98194	Committed	Extend Commerce Avenue to Waterworld Parkway, including construction of vehicular bridge over Pine Creek, installation of trails and a pedestrian bridge and connecting Willow Pass Road to Concord Avenue/Route 242 interchange	☑	☐	☐	☐	☐
98196	Committed	Construct auxiliary lanes on Route 24 from Gateway Boulevard to Brookwood Road/Moraga Way	☐	☑	☐	☐	☑
98198	New Commitment	Improve safety and operations on Vasco Road in Contra Costa County	☐	☑	☐	☐	☐
98211	Committed	Extend I-80 eastbound HOV lanes from Route 4 to the Crockett interchange	☑	☐	☐	☐	☑
98222	New Commitment	Construct freeway-to-freeway direct connectors between Route 4 Bypass and Route 160	☑	☐	☐	☐	☑
98999	Committed	Widen Route 4 from Somersville Road to Route 160 and improve interchanges	☑	☐	☐	☐	☑
230084	New Commitment	Construct a railroad grade separation at the Richmond Waterfront on the Marina Bay Parkway	☐	☑	☐	☑	☐
230090	New Commitment	Expand and enhance AC Transit facilities in western Contra Costa County, including environmental sustainability projects, zero emission improvements and a new operating facility	☐	☑	☐	☑	☐
230123	New Commitment	Expand existing WestCAT maintenance facility (includes land purchase)	☑	☐	☐	☐	☐
230127	Committed	Construct new satellite WestCAT maintenance facility (includes land purchase)	☐	☑	☐	☐	☐
230129	Committed	Expand WestCAT service, including purchase of vehicles	☑	☐	☐	☐	☑
230185	New Commitment	Establish express bus service and eBART support network (includes park-and-ride lots and rolling stock)	☐	☑	☐	☐	☑
230188	Committed	Purchase land in Oakley for use as a park-and-ride lot	☑	☐	☐	☐	☐
230193	Committed	Enhance AC Transit Zero Emission Bus (ZEB) program, including fueling stations and new maintenance bays	☐	☑	☐	☑	☐
230194	Committed	Implement AC Transit Environmental Sustainability Program	☐	☑	☐	☑	☐

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** Projects amended into the 2009 TIP Amendment #09-06

Reference Number	Investment*	Project/Program	Complete and Operational By			2009 Reg'l TIP/ Signif. #09-06**	
			2015	2025	2035		
Contra Costa							
230195	Committed	Improve safety and security on AC Transit vehicles and in facilities, including installing surveillance systems and emergency operations improvements	☐	☑	☐	☑	☐
230196	Committed	Implement AC Transit San Pablo Dam Road Transit Priority Measures (TPM), including passenger safety improvements and road improvements	☐	☑	☐	☑	☑
230202	Committed	Widen Route 4 Bypass to 4 lanes from Laurel Road to Sand Creek Road	☑	☐	☐	☐	☑
230203	Committed	Construct Route 4 Bypass interchange at Sand Creek Road	☑	☐	☐	☐	☑
230205	Committed	Widen Route 4 Bypass to 4 lanes from Sand Creek Road to Balfour Road	☑	☐	☐	☐	☑
230206	Committed	Construct Route 4 Bypass interchange at Balfour Road (Phase 1)	☑	☐	☐	☐	☑
230212	Committed	Improve Clayton Road/Treat Boulevard intersection and increase capacity (includes upgrading traffic signal and geometric improvements)	☑	☐	☐	☑	☐
230216	New Commitment	Construct 2-lane bridge connecting Waterworld Parkway with Meridian Park Boulevard	☐	☑	☐	☐	☑
230225	Committed	Improve and expand arterial streets in central Hercules for express bus and rail transit facilities to support transit-oriented development at I-80/Route 4 intersection	☑	☐	☐	☑	☐
230227	Committed	Conduct engineering, environmental and financial feasibility assessment of rail mass transit to western Contra Costa County (includes future station site acquisition)	☐	☑	☐	☐	☐
230229	New Commitment	Widen Pinole Valley Road ramps at I-80 to provide a dedicated right-turn lane on eastbound on-ramp and bus turnout/shelter on westbound on-ramp	☑	☐	☐	☑	☑
230232	New Commitment	Construct new interchange at Route 4/Phillips Lane	☑	☐	☐	☑	☑
230233	Committed	Extend James Donlon Boulevard to Kirker Pass Road by constructing a new 2-lane expressway	☑	☐	☐	☐	☑
230236	Committed	Widen Pittsburg-Antioch Highway from 2 lanes to 4 lanes	☑	☐	☐	☐	☑
230237	New Commitment	Extend West Leland Road from San Marco Boulevard to Willow Pass Road (includes a raised median, bicycle lanes and sidewalks)	☐	☑	☐	☐	☐
230238	Committed	Widen California Avenue from 2 lanes to 4 lanes with 2 left-turn lanes	☑	☐	☐	☐	☐
230239	Committed	Widen and improve Buskirk Avenue between Monument Boulevard and Hookston Road to provide 2 through lanes in each direction (includes road realignment, new traffic signals and bicycle/pedestrian streetscape improvements)	☑	☐	☐	☐	☐

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Reference Number	Investment*	Project/Program	Complete and Operational By			2009 Reg'l TIP/ Signif. #09-06**	
			2015	2025	2035		
Contra Costa							
230240	New Commitment	Add additional left- or right-turn lanes at various intersections along Contra Costa Boulevard (between Monument Boulevard and 2nd Avenue)	☐	☑	☐	☐	☐
230247	New Commitment	Widen Lone Tree Way to 6 lanes from O'Hara Avenue to Brentwood Boulevard	☑	☐	☐	☐	☑
230249	Committed	Construct a 6-lane grade separation undercrossing along the Union Pacific Railroad line at Lone Tree Way	☑	☐	☐	☐	☐
230250	Committed	Widen Brentwood Boulevard from 2 lanes to 4 lanes between Marsh Creek and Delta Road	☑	☐	☐	☑	☐
230253	Committed	Replace the old 2-lane Fitzuren Road with a new, 4-lane divided arterial (includes shoulders, bicycle lanes, a park-and-ride lot and sidewalks)	☑	☐	☐	☑	☐
230274	Committed	Widen Main Street to 6 lanes from Route 160 to Big Break Road	☐	☑	☐	☑	☑
230279	New Commitment	Extend John Muir Parkway in Hercules with 4 traffic lanes, a bridge, bicycle path and landscaping	☐	☑	☐	☐	☑
230288	Committed	Widen Empire Avenue from 2 to 4 lanes between Lone Tree Way and Union Pacific Railroad right-of-way/Antioch city limits	☑	☐	☐	☐	☐
230289	New Commitment	Construct Main Street Downtown Bypass road between Vintage Parkway and 2nd Street	☐	☑	☐	☐	☑
230291	New Commitment	Add northbound truck climbing lane and a bicycle lane on Kirker Pass Road from Clearbrook Drive in Concord to just beyond the crest of Kirker Pass	☑	☐	☐	☐	☑
230293	Committed	Add transit stops, sidewalks, and bicycle and pedestrian amenities on San Pablo Dam Road in El Sobrante	☐	☑	☐	☐	☐
230306	New Commitment	Add a second southbound lane on Alhambra Avenue from Walnut Avenue to the south side of Highway 4 (includes signal modifications)	☑	☐	☐	☐	☑
230307	New Commitment	Widen Camino Tassajara Road from 2 lanes to 4 lanes from Windemere Parkway to the Alameda/Contra Costa County line	☑	☐	☐	☑	☑
230308	New Commitment	Straighten curves to improve safety and operation of Alhambra Valley Road	☐	☑	☐	☐	☐
230309	New Commitment	Provide rolling stock, infrastructure and information technology for Bus Rapid Transit service in the Pacheco/Contra Costa Boulevard/North Main corridor	☑	☐	☐	☐	☑
230318	New Commitment	Extend North Richmond truck route along Soto Street from Market Avenue to Parr Boulevard	☑	☐	☐	☐	☑
230320	Committed	Extend the I-680 southbound HOV lane northward from Livorna Road to north of Rudgear Road	☑	☐	☐	☐	☑

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			2015	2025	2035		
Contra Costa							
230321	New Commitment	Construct Phase 2 of Hercules Intermodal Station (includes station building and approximately 350 parking spaces)	☐	☑	☐	☑	☑
230397	Committed	Construct and develop infrastructure enhancements to improve operations of transit service within the WestCAT service area, including park-and-ride lots, signal prioritization, bus-only lanes and freeway drop ramps	☐	☑	☐	☐	☑
230401	Committed	Construct bicycle- and pedestrian-friendly improvements along San Pablo Avenue from El Cerrito to Crockett to support transit-oriented development	☐	☑	☐	☐	☐
230402	Committed	Install new or upgraded corridor management and traveler information elements along the I-80 corridor from the Carquinez Bridge to the San Francisco-Oakland Bay Bridge Toll Plaza (Phase 1)	☑	☐	☐	☐	☑
230505	Committed	Provide transportation improvements on the east side of the Richmond BART station to accommodate redevelopment for a transit village	☑	☐	☐	☑	☐
230535	Committed	Realign curves along Marsh Creek Road to improve safety and operations	☑	☐	☐	☐	☐
230538	Committed	Widen Bailey Road lanes and shoulders	☑	☐	☐	☐	☐
230542	Committed	Close a bicycle/pedestrian gap at San Pablo Avenue bridge in Pinole by upgrading the existing bridge or constructing a new dedicated bicycle/pedestrian bridge	☐	☑	☐	☐	☐
230596	Committed	Construct Pacheco Boulevard Transit Hub on Blum Road at the I-680/Route 4 interchange (includes 6 bus bays and a 110-space park-and-ride lot)	☑	☐	☐	☐	☑
230597	Committed	Install new or upgraded corridor management and real-time traveler information improvements in I-80 corridor between the Carquinez Bridge and the San Francisco-Oakland Bay Bridge Toll Plaza (Phase 2)	☑	☐	☐	☐	☑
230613	Committed	Implement ferry service between Hercules and San Francisco	☑	☐	☐	☐	☑
230631	Committed	Double the existing rail track between Oakley and Port Chicago	☑	☐	☐	☑	☑
230693	New Commitment	Local streets and roads maintenance	☐	☐	☑	☐	☐

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			2015	2025	2035		
Marin							
21030	New Commitment	Improve U.S. 101/I-580 interchange and construct a freeway-to-freeway direct connector from northbound U.S. 101 to eastbound I-580 (project approval and environmental document phases only)	☐	☑	☐	☑	☑
21302	Committed	Implement Marin County's bicycle and pedestrian program	☐	☐	☑	☐	☐
21315	New Commitment	Signalize ramp intersections at U.S. 101/Miller Creek Road interchange	☑	☐	☐	☑	☑
21325	New Commitment	Improve local access to U.S. 101 from Tamalpais Drive to just north of Sir Francis Drake Boulevard	☑	☐	☐	☐	☐
22437	New Commitment	Construct auxiliary lanes at various locations along U.S. 101 and provide bus-on-shoulder options where feasible	☑	☐	☐	☑	☑
22753	New Commitment	Construct park-and-ride lots to support regional express bus service	☐	☐	☑	☑	☐
94563	Committed	Widen U.S. 101 for HOV lanes (one in each direction) from Lucky Drive in Corte Madera to North San Pedro Road in San Rafael	☑	☐	☐	☐	☑
98179	New Commitment	Improve U.S. 101/Tiburon Boulevard interchange, including circulation and signal improvements to nearby intersections	☐	☑	☐	☑	☑
230060	New Commitment	Implement Transit Priority Measures (TPM) on major transit corridors (includes signal priority, queue-jump lanes, real-time information and enhanced passenger board areas)	☐	☐	☑	☑	☑
230095	Committed	Widen Route 1 at Pacific Way to provide a Muir Beach bus stop	☑	☐	☐	☐	☑
230105	New Commitment	Replace Pacific Way Bridge with new two-lane bridge with a separate bicycle and pedestrian path	☑	☐	☐	☐	☑
230252	New Commitment	Expand Marin County local bus service	☐	☑	☐	☑	☑
230400	Committed	Improve access to Southern Marin parklands	☑	☐	☐	☐	☐
230406	Committed	Implement initial set of transportation improvements identified in the Canal Neighborhood Community-Based Transportation Plan	☑	☐	☐	☐	☐
230418	New Commitment	Rehabilitate major roads of countywide significance	☐	☐	☑	☑	☐
230422	New Commitment	Signalize Andersen Drive/East Sir Francis Drake Boulevard intersection	☑	☐	☐	☐	☐
230431	New Commitment	Construct intermodal transit hub in Southern Marin Priority Development Area and/or in the city of Novato	☑	☐	☐	☑	☑
230502	Committed	Construct westbound I-580 to northbound U.S. 101 connector	☑	☐	☐	☐	☑
230516	Committed	Implement Marin County's Safe Routes to Schools program	☐	☐	☑	☐	☐
230549	New Commitment	Implement local arterial improvements parallel to U.S. 101 and I-580 (includes signalization, signal controller upgrades, signal coordination and geometric improvements)	☐	☐	☑	☑	☐

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			2015	2025	2035		
Marin							
230694	New Commitment	Local streets and roads maintenance	☐	☐	☑	☐	☐
230709	Committed	Implement routine maintenance of bicycle and pedestrian Class I facilities	☐	☐	☑	☐	☐
230711	Committed	Implement parking improvements at Larkspur ferry terminal	☐	☑	☐	☐	☐

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Napa							
22746	New Commitment	Widen Route 29/First Street overcrossing to 4 lanes	☐	☑	☐	☐	☑
94073	Committed	Construct a flyover connecting southbound Route 221 to southbond routes 12 and 29 (environmental and design phases)	☐	☑	☐	☐	☐
94075	Committed	Construct grade separation improvements at Route 12/Route 29 intersection (environmental phase)	☑	☐	☐	☐	☐
94076	New Commitment	Construct the Trancas intermodal facility adjacent to the Route 29 and Redwood Road/Trancas Street interchange	☑	☐	☐	☐	☑
230371	New Commitment	Construct ADA-compliant pedestrian and bicycle path from Presidents Circle to railroad track in Yountville	☑	☐	☐	☐	☐
230373	New Commitment	Construct pedestrian and bicycle pathway from Madison Street to Solano Avenue	☑	☐	☐	☐	☐
230374	New Commitment	Construct pedestrian crosswalk at Charter Oak and Main Streets in St. Helena	☑	☐	☐	☐	☐
230376	New Commitment	Construct pedestrian and bicycle crossing at Tunnel of Elms in St. Helena	☑	☐	☐	☐	☐
230377	New Commitment	Construct pedestrian and bicycle crossing over Sulphur Creek at Oak Avenue in St. Helena	☑	☐	☐	☐	☐
230378	New Commitment	Implement accessibility improvement projects in downtown St. Helena, including curb cuts	☑	☐	☐	☐	☐
230379	New Commitment	Improve the truck route between Adams Street and Main Street	☑	☐	☐	☐	☑
230381	New Commitment	Improve signalization along Main Street in St. Helena	☑	☐	☐	☐	☑
230387	New Commitment	Construct a roundabout or improve traffic signals to improve safety at the Deer Park/Silverado Trail intersection	☑	☐	☐	☐	☑
230388	New Commitment	Improve the safety of the Oak Knoll/Silverado Trail intersection	☐	☑	☐	☐	☐
230389	New Commitment	Improve the safety of the Yountville Cross/Silverado Trail intersection	☐	☑	☐	☐	☐
230390	New Commitment	Improve the safety of the Oakville Crossroad/Route 29 intersection	☐	☑	☐	☐	☐
230392	New Commitment	Extend Devlin Road from Fagan Creek to Green Island Road	☑	☐	☐	☐	☐
230393	New Commitment	Construct middle-turn lane on Route 29 from Galleron Lane to St. Helena	☑	☐	☐	☐	☑
230394	New Commitment	Improve the traffic signals at Solano and Wine Country avenues (includes road widening, drainage and rail crossing improvements)	☑	☐	☐	☐	☐
230483	New Commitment	Prepare Project Study Report (PSR) to improve Silverado Trail/Third/Coombsville/East intersection and improve Silverado Trail south of First Street	☑	☐	☐	☐	☐

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Napa							
230484	New Commitment	Install traffic signals on Imola Avenue at Route 29 ramps in Napa	☑	☐	☐	☐	☐
230486	New Commitment	Extend Devlin Road from Tower Road to Airpark Road in American Canyon	☑	☐	☐	☐	☑
230498	New Commitment	Construct Class I bicycle trail from Route 29 to Silverado Trail	☑	☐	☐	☐	☐
230499	New Commitment	Construct bicycle/pedestrian path from Oak Circle to south Yountville town limit	☑	☐	☐	☐	☐
230508	New Commitment	Elevate Solano Avenue from Yountville to Dry Creek	☑	☐	☐	☐	☐
230518	New Commitment	Construct a roundabout at Forest Road/Route 128	☑	☐	☐	☐	☑
230519	New Commitment	Improve the safety of the Route 29/Route 128 (Rutherford Crossroad) intersection by constructing a roundabout or improving signal operations	☑	☐	☐	☐	☐
230599	New Commitment	Implement Phase 2 improvements to Route 12 (Jamieson Canyon), including grade realignment and full safety barrier	☑	☐	☐	☐	☐
230622	New Commitment	Construct new bicycle/pedestrian trail through American Canyon	☑	☐	☐	☐	☐
230695	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐

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San Francisco							
21502	New Commitment	Implement pedestrian projects, including sidewalk repair, crossing signal, signage improvements and an education campaign	☐	☐	☑	☐	☐
21503	New Commitment	Implement a traffic calming program aimed at reducing auto traffic speeds and improving pedestrian and bicyclist safety throughout San Francisco	☐	☐	☑	☐	☐
21504	New Commitment	Improve roadways throughout San Francisco by installing new traffic signs and signals, providing new transit lane markings, installing new parking meters and relocating a traffic maintenance shop	☐	☐	☑	☐	☐
21505	New Commitment	Repair and retrofit local bridge structures and pedestrian overcrossings	☐	☐	☑	☐	☐
21510	Committed	Extend the Third Street Light Rail line from north of King Street to Clay Street in Chinatown via a new Central Subway, including the purchase of light-rail vehicles	☐	☑	☐	☐	☑
21533	New Commitment	Plant trees and maintain new and existing trees in public rights-of-way throughout San Francisco	☐	☐	☑	☐	☐
21535	New Commitment	Implement Travel Demand Management (TDM) program, including transit route planning, bicycle and pedestrian planning and transit-oriented development studies and planning	☐	☐	☑	☐	☐
21549	New Commitment	Implement direct access route from Hunters Point Shipyard to U.S. 101, including repaving existing roadway and adding new curbs and curb ramps, sidewalks, street lighting, trees and route signage	☑	☐	☐	☑	☑
22249	New Commitment	Upgrade and extend streets and other vehicular facilities throughout San Francisco	☐	☐	☑	☐	☐
22412	New Commitment	Purchase light-rail vehicles to expand Muni rail service	☑	☐	☐	☑	☐
22415	New Commitment	Provide new historic streetcar service along the Embarcadero between the Caltrain Station and Fisherman's Wharf; extend streetcar service from Fisherman's Wharf to Fort Mason	☑	☐	☐	☐	☑
22420	New Commitment	Implement Bus Rapid Transit (BRT) and Transit Preferential Streets (TPS) programs throughout San Francisco	☐	☐	☑	☐	☑
22462	New Commitment	Implement bicycling programs, including construction and rehabilitation of bicycle lanes and paths; improve signage and crossings; and implement a public awareness campaign	☐	☐	☑	☐	☐
22512	New Commitment	Provide capital improvements to support ferry service between Treasure Island and San Francisco	☑	☐	☐	☑	☐
22982	New Commitment	Enhance transit programs in San Francisco that promote system connectivity and accessibility, close service gaps and expand transit service	☐	☐	☑	☑	☐
22984	New Commitment	Construct new/reconstruct existing wheelchair curb ramps	☐	☐	☑	☐	☐

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San Francisco							
94632	Committed	Extend Third Street Light Rail from Fourth and King streets to Bayshore Caltrain Station	☑	☐	☐	☐	☑
98593	New Commitment	Fund the Integrated Transportation Management System (SFgo)	☐	☐	☑	☑	☐
230161	Committed	Implement a Bus Rapid Transit (BRT) project on Van Ness Avenue (includes dedicated transit lanes, signal priority and pedestrian and urban design upgrades)	☑	☐	☐	☐	☑
230164	New Commitment	Implement a Bus Rapid Transit (BRT) project on Geary Boulevard (includes dedicated transit lanes, signal priority and pedestrian and urban design upgrades)	☑	☐	☐	☐	☑
230168	New Commitment	Improve the Great Highway between Lincoln Way and 48th Avenue (includes resurfacing roadway, installing drainage systems and constructing medians)	☑	☐	☐	☐	☐
230207	New Commitment	Implement a Bus Rapid Transit (BRT) project on the Geneva Avenue/Harney Way corridor (includes new infrastructure and rolling stock)	☑	☐	☐	☑	☑
230211	New Commitment	Extend trolley coach infrastructure into Mission Bay along 16th Street and Third Street, and implement transit signal priority along 16th Street and Fillmore Street	☑	☐	☐	☐	☑
230215	New Commitment	Extend existing trolley coach lines throughout San Francisco	☐	☑	☐	☑	☐
230364	Committed	Improve water access to San Francisco parks	☐	☐	☑	☐	☐
230490	New Commitment	Reconstruct and widen Harney Way to 8 lanes (6 mixed flow, 2 bus-only for Bus Rapid Transit service) and improve bicycle lanes and sidewalks	☑	☐	☐	☑	☑
230517	New Commitment	Improve transit and roadway connectivity between San Francisco and San Mateo counties	☐	☐	☑	☑	☐
230555	Committed	Reconstruct ramps on the east side of the San Francisco-Oakland Bay Bridge's Yerba Buena Island tunnel	☐	☑	☐	☐	☐
230581	New Commitment	Improve San Francisco ferry infrastructure, including terminals, intermodal connections, ferry berths, emergency response systems and landside improvements	☐	☐	☑	☑	☐
230585	New Commitment	Improve the functionality, safety and attractiveness of local streets and arterials in San Francisco	☐	☐	☑	☐	☐
230594	New Commitment	Improve San Francisco BART stations to enhance passenger safety, accessibility and capacity, improve signage and provide real time transit information	☐	☐	☑	☐	☐
230696	New Commitment	Local streets and roads maintenance	☐	☐	☑	☐	☐

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San Mateo							
21602	New Commitment	Reconstruct U.S. 101/Broadway interchange	☑	☐	☐	☐	☑
21603	New Commitment	Modify U.S. 101/Woodside Road interchange	☑	☐	☐	☐	☑
21604	New Commitment	Construct auxiliary lanes (one in each direction) on U.S. 101 from Sierra Point to San Francisco County line	☑	☐	☐	☑	☑
21606	Committed	Reconstruct U.S. 101/Willow Road interchange	☑	☐	☐	☐	☑
21607	New Commitment	Modify University Avenue overcrossing of U.S. 101 to improve operational efficiency and safety (includes widening of overcrossing, constructing new southbound off-ramp and auxiliary lane, and adding bicycle lanes)	☑	☐	☐	☐	☑
21608	Committed	Construct auxiliary lanes (one in each direction) on U.S. 101 from Marsh Road to Embarcadero Road	☑	☐	☐	☐	☑
21609	Committed	Improve local access from Sneath Lane and San Bruno Avenue to I-280/I-380 interchange (study phase only)	☐	☑	☐	☐	☑
21610	New Commitment	Construct auxiliary lanes (one in each direction) on U.S. 101 from San Bruno Avenue to Grand Avenue	☑	☐	☐	☑	☑
21612	New Commitment	Improve access to/from west side of Dumbarton Bridge on Route 84 connecting to U.S. 101 (includes flyovers, interchange improvements and conversion of Willow Road between Route 84 and U.S. 101 to expressway)	☐	☑	☐	☐	☑
21613	New Commitment	Improve Route 92 from San Mateo-Hayward Bridge to I-280 (includes widening and uphill passing lane from U.S. 101 to I-280)	☐	☑	☐	☑	☑
21615	New Commitment	Reconstruct I-280/Route 1 interchange, including ramps	☐	☑	☐	☑	☑
21623	New Commitment	Improve Caltrain stations (includes upgrades/relocation of platforms, new platforms, pedestrian tunnels, pedestrian crossings and parking improvements)	☐	☐	☑	☐	☐
21624	New Commitment	Implement an incentive program to support transit-oriented developments within 1/2-mile of Caltrain stations that have a minimum density of 40 units per acre	☐	☐	☑	☐	☐
21626	New Commitment	Implement Caltrain grade separation program in San Mateo County	☐	☐	☑	☑	☐
21892	New Commitment	Widen Woodside Road from 4 to 6 lanes from El Camino Real to Broadway	☑	☐	☐	☑	☑
21893	New Commitment	Widen Route 92 from Half Moon Bay city limits and Pilarcitos Creek (includes widening shoulders and travel lanes to standard widths and straightening curves)	☐	☑	☐	☐	☐
22120	Committed	Construct ferry terminal at Redwood City	☐	☑	☐	☐	☑

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** Projects amended into the 2009 TIP Amendment #09-06

Reference Number	Investment*	Project/Program	Complete and Operational By			2009 Reg'l TIP/ Signif. #09-06**	
			2015	2025	2035		
San Mateo							
22226	New Commitment	Construct Bayshore Intermodal Facility for Caltrain, Muni light rail, and Muni and SamTrans buses (includes cross-platform transit transfers between Muni Third Street light-rail station and Caltrain Bayshore station)	☐	☑	☐	☐	☑
22227	New Commitment	Extend Geneva Avenue to the U.S. 101/Candlestick Point interchange (includes Caltrain grade separation at Tunnel Avenue and other local street improvements)	☑	☐	☐	☐	☑
22229	New Commitment	Reconstruct U.S. 101/Sierra Point Parkway interchange (includes extension of Lagoon Way to U.S. 101)	☐	☑	☐	☐	☑
22230	New Commitment	Construct auxiliary lanes (one in each direction) on I-280 from I-380 to Hickey Boulevard	☐	☑	☐	☐	☑
22232	Committed	Construct streetscape improvements on Mission Street (Route 82) from John Daly Boulevard to San Pedro Road	☑	☐	☐	☐	☐
22239	New Commitment	Widen Manor Drive overcrossing at Route 1 (includes new traffic signals at intersection)	☐	☑	☐	☐	☑
22261	New Commitment	Replace San Pedro Creek Bridge over Route 1	☑	☐	☐	☑	☐
22268	New Commitment	Provide countywide shuttle service between Caltrain stations and major activity centers (includes purchase of vehicles)	☐	☐	☑	☐	☐
22271	New Commitment	Widen Skyline Boulevard (Route 35) from 2 to 4 lanes between I-280 and Sneath Lane	☐	☑	☐	☐	☑
22274	New Commitment	Install an Intelligent Transportation System (ITS) and a Traffic Operation System (TOS) countywide	☐	☐	☑	☐	☐
22279	New Commitment	Construct new U.S. 101/Produce Avenue interchange (includes replacement of Produce Avenue on- and off-ramps and South Airport Boulevard ramps to U.S. 101 at Wondercolor Lane)	☐	☑	☐	☐	☑
22282	New Commitment	Improve U.S. 101 operations near Route 92	☑	☐	☐	☑	☐
22615	Committed	Improve station facilities and other rail improvements in Redwood City, Menlo Park and East Palo Alto in conjunction with the Dumbarton Rail Corridor	☑	☐	☐	☐	☐
22726	Committed	Implement ferry service between South San Francisco and Alameda/Oakland	☑	☐	☐	☐	☑
22751	New Commitment	Improve operations and safety of Route 1 in Half Moon Bay (includes extending Route 1 to Half Moon Bay city limits and channelization at local intersections)	☐	☑	☐	☑	☑
22756	New Commitment	Reconstruct U.S. 101/Candlestick Point interchange	☑	☐	☐	☑	☑
94643	Committed	Widen Route 92 from Half Moon Bay city limits to Route 1 (includes adding left-turn lanes, signal modifications, shoulders and bicycle lanes)	☑	☐	☐	☐	☑

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			2015	2025	2035		
San Mateo							
94644	New Commitment	Construct westbound slow-vehicle lane on Route 92 from Route 35 to I-280	☐	☑	☐	☑	☑
94656	Committed	Construct Devil's Slide Bypass between Montara and Pacifica	☑	☐	☐	☐	☑
94667	Committed	Provide SamTrans Americans with Disabilities Act (ADA) paratransit services (includes operating support and purchase of new paratransit vehicles)	☐	☐	☑	☐	☐
98176	Committed	Construct auxiliary lanes on U.S. 101 from 3rd Avenue to Millbrae and reconstruct U.S. 101/Peninsula interchange	☑	☐	☐	☐	☑
98204	New Commitment	Add travel lane (one in each direction) on Route 1 (Calera Parkway) between Fassler Avenue and Westport Drive in Pacifica (includes traffic signal coordination on Fassler Avenue and Reina Del Mar Avenue)	☑	☐	☐	☐	☑
230192	Committed	Improve SamTrans bus services (includes enhanced service levels, transit priority measures, signal timing and dedicated bus lanes)	☐	☐	☑	☐	☑
230349	Committed	Improve local access to National Park Service (NPS) lands in San Mateo	☐	☐	☑	☐	☐
230417	Committed	Modify U.S. 101/Holly Street interchange (includes widening eastbound to northbound loop to 2 lanes and eliminating northbound to westbound loop)	☑	☐	☐	☑	☑
230424	Committed	Modify Route 92/El Camino Real interchange	☑	☐	☐	☐	☑
230428	Committed	Extend Blomquist Street over Redwood Creek to East Bayshore and Bair Island Road	☐	☑	☐	☑	☐
230430	Committed	Implement San Mateo's bicycle and pedestrian program	☐	☐	☑	☐	☐
230434	Committed	Implement local circulation improvements and the local streets traffic management program	☐	☐	☑	☑	☐
230592	Committed	Improve streetscape and traffic calming along Bay Road, and construct new northern access connection between Demeter Street and University Avenue	☑	☐	☐	☐	☐
230697	New Commitment	Local streets and roads maintenance	☐	☐	☑	☐	☐
230704	Committed	Make Route 92 operational improvements to Chess Drive on-ramps	☑	☐	☐	☑	☐

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			2015	2025	2035		
Santa Clara							
21702	New Commitment	Construct interchange at U.S. 101 and Buena Vista Avenue	☐	☑	☐	☑	☑
21714	New Commitment	Widen U.S. 101 between Monterey Highway and Route 25 and construct an interchange at U.S. 101/Route 25 (includes an extension to Santa Teresa Boulevard)	☑	☐	☐	☑	☑
21719	New Commitment	Improve I-880/I-280/Stevens Creek Boulevard interchange (includes eliminating eastbound off-ramp loop, reconfiguring the off-ramp to eastbound Stevens Creek Boulevard and improving Winchester Boulevard at I-280)	☐	☑	☐	☐	☑
21720	New Commitment	Improve U.S. 101/Tennant Avenue interchange, including constructing a new bridge parallel to existing bridge over U.S. 101, widening Tennant Avenue from 2 lanes to 4 lanes with bicycle lanes and sidewalks, and adding a new northbound loop on-ramp	☑	☐	☐	☐	☑
21722	New Commitment	Improve U.S. 101 southbound Trimble Road/De La Cruz Boulevard/Central Expressway interchange	☑	☐	☐	☑	☑
21749	New Commitment	Extend Butterfield Boulevard from Tennant Avenue to Watsonville Road (includes new roadway segment, railroad overpass bridge, drainage channel, traffic signal upgrade, median, landscaping, bicycle lanes and sidewalks)	☑	☐	☐	☑	☑
21760	Committed	Double-track segments of the Caltrain line between San Jose and Gilroy	☑	☐	☐	☐	☑
21785	New Commitment	Reconfigure local roadway and interchange at U.S. 101/Blossom Hill Road in San Jose (includes widening Blossom Hill Road over U.S. 101)	☑	☐	☐	☐	☐
21787	Committed	Expand the Palo Alto Caltrain Station and Bus Transit Center	☐	☑	☐	☐	☑
21790	Committed	Provide VTA's share of funds for additional train sets, passenger facilities, and service upgrades for the ACE service from San Joaquin and Alameda counties	☑	☐	☐	☐	☐
21797	Committed	Implement Route 17 bus service improvements between downtown San Jose and downtown Santa Cruz	☑	☐	☐	☐	☑
21921	Committed	Extend BART from Fremont (Warm Springs) to San Jose/Santa Clara (includes environmental, preliminary engineering, property acquisition and construction phases)	☐	☑	☐	☑	☑
21922	Committed	Implement the Mineta San Jose International Airport automated people-mover service	☐	☑	☐	☑	☑
21923	Committed	Implement Bus Rapid Transit (BRT) in the Alameda and El Camino Real corridors	☑	☐	☐	☐	☑
22014	Committed	Implement Bus Rapid Transit (BRT) in the Santa Clara-Alum Rock Corridor with the potential to convert to light-rail in the future (Santa Clara-Alum Rock Phase 1)	☑	☐	☐	☐	☑

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			2015	2025	2035		
Santa Clara							
22019	Committed	Convert Bus Rapid Transit (BRT) to light-rail transit in the Santa Clara-Alum Rock corridor (Santa Clara-Alum Rock Phase 2)	☐	☑	☐	☐	☑
22118	New Commitment	Extend Hill Road from East Main Avenue to Peet Avenue	☐	☑	☐	☐	☑
22134	Committed	Construct a lane on southbound U.S. 101 using the existing median from south of Story Road to Yerba Buena Road; modify the U.S. 101/Tully road interchange to a partial cloverleaf	☑	☐	☐	☐	☑
22142	New Commitment	Improve U.S. 101/Capitol Expressway interchange (includes new northbound on-ramp from Yerba Buena Road)	☑	☐	☐	☐	☑
22145	New Commitment	Widen westbound Route 237 on-ramp from Route 237 to northbound U.S. 101 to 2 lanes and add auxiliary lane on northbound U.S. 101 from Route 237 on-ramp to Ellis Street interchange (includes Traffic Operation System/TOS elements)	☐	☐	☑	☑	☑
22153	New Commitment	Extend Mary Avenue north across Route 237 (includes reconfiguring the Mathilda Avenue/U.S. 101 interchange)	☑	☐	☐	☐	☑
22156	New Commitment	Improve Route 85 northbound to Route 237 eastbound connector ramp and construct auxiliary lane on eastbound Route 237 between Route 85 and Middlefield Road	☑	☐	☐	☑	☑
22162	New Commitment	Improve Route 237 westbound to Route 85 southbound connector ramp (includes widening off-ramp to Route 85 to 2 lanes and adding a southbound auxiliary lane between Route 237 and El Camino Real interchange on Route 85)	☐	☐	☑	☑	☑
22175	New Commitment	Widen Almaden Expressway to 8 lanes between Coleman Road and Blossom Hill Road	☑	☐	☐	☑	☑
22179	New Commitment	Widen Central Expressway from 4 to 6 lanes between Lawrence Expressway and San Tomas Expressway	☐	☑	☐	☑	☑
22180	New Commitment	Widen Central Expressway between Lawrence Expressway and Mary Avenue to provide auxiliary lanes	☑	☐	☐	☑	☑
22186	New Commitment	Widen San Tomas Expressway to 8 lanes between El Camino Real (Route 82) and Williams Road	☐	☑	☐	☑	☑
22246	Committed	Implement bicycle and pedestrian improvements on Blossom Hill Road	☑	☐	☐	☐	☐
22808	Committed	Implement Caltrain grade separation program in Santa Clara County	☐	☐	☑	☐	☐
22809	New Commitment	Realign DeWitt Avenue/Sunnyside Avenue intersection	☑	☐	☐	☐	☐
22814	New Commitment	Extend Foothill Expressway westbound deceleration lane at San Antonio Road	☑	☐	☐	☐	☐
22815	New Commitment	Upgrade Miramonte Avenue bikeway to Class II between Mountain View and Foothill Expressway	☑	☐	☐	☐	☐

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			2015	2025	2035		
Santa Clara							
22822	New Commitment	Provide real-time expressway traffic information in Santa Clara County	☑	☐	☐	☐	☐
22839	Committed	Convert the HOV lane on Central Expressway between San Tomas and De La Cruz to a general purpose lane	☑	☐	☐	☐	☑
22842	New Commitment	Improve Route 152/Ferguson Road intersection, includes lighting and widening	☑	☐	☐	☐	☐
22843	New Commitment	Widen Lawrence Expressway from 6 to 8 lanes between Moorpark Avenue/Bollinger Road and south of Calvert Court	☐	☐	☑	☑	☑
22854	New Commitment	Improve bicycle/pedestrian safety at I-280/Oregon-Page Mill interchange	☐	☑	☐	☐	☑
22873	New Commitment	Widen Loyola Bridge over Foothill Expressway to add a third lane for left turns and improve bicycle/pedestrian access	☑	☐	☐	☐	☑
22878	New Commitment	Realign Wildwood Avenue to connect with Lawrence Expressway (includes new traffic signal)	☑	☐	☐	☐	☐
22883	New Commitment	Modify medians on Lawrence Expressway (including those at Lochinvar Avenue, De Sota Avenue, Golden State Drive, Granada Avenue, Buckley Street and St. Lawrence Drive/Lawrence Station Road) for limited access	☑	☐	☐	☐	☐
22895	New Commitment	Improve the operations of San Tomas Expressway/Route 17 interchange (includes restriping the eastbound through lane on White Oaks Road and adding a second right-turn lane on the southbound off-ramp)	☑	☐	☐	☐	☑
22909	Committed	Fund the operating and capital needs of Measure A transit services	☐	☐	☑	☐	☐
22910	New Commitment	Add Traffic Operations System (TOS) infrastructure on Santa Teresa Boulevard between Day Road and Mesa Road	☐	☐	☑	☐	☑
22925	New Commitment	Realign existing curve on DeWitt Avenue between Edmundson Avenue and Spring Avenue	☑	☐	☐	☑	☐
22944	Committed	Widen I-880 for HOV lanes in both directions from Route 237 in Milpitas to U.S. 101 in San Jose	☑	☐	☐	☐	☑
22956	Committed	Extend the Capitol Avenue light-rail line from the Alum Rock Transit Center to a rebuilt Eastridge Transit Center	☑	☐	☐	☐	☑
22965	New Commitment	Construct U.S. 101/Mabury Road/Taylor Street interchange	☑	☐	☐	☑	☑
22978	Committed	Extend the Capitol Expressway light-rail transit (LRT) from Eastridge Transit Center to Nieman Boulevard	☐	☑	☐	☐	☑
22979	Committed	Construct local roadway improvements over-crossing U.S. 101 (includes local circulation improvements to Zanker Road, Old Bayshore Highway, N. 4th Street and Skyport Drive)	☑	☐	☐	☐	☐

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			2015	2025	2035		
Santa Clara							
98119	Committed	Extend light-rail transit from Winchester Station to Route 85 (Vasona Junction)	☑	☐	☐	☐	☑
230174	New Commitment	Construct a 4-lane bridge across Uvas Creek connecting the east and west sides of Tenth Street, including 4 travel lanes, bicycle lanes, sidewalks and a new traffic signal at the intersection of Tenth Street and Uvas Park Drive	☑	☐	☐	☐	☑
230175	New Commitment	Construct a new 2-lane overcrossing on Las Animas Avenue at U.S. 101 (includes shoulders, bicycle lanes and sidewalks)	☑	☐	☐	☐	☑
230200	New Commitment	Extend Autumn Street from Union Pacific Railroad crossing to Park Avenue	☑	☐	☐	☐	☑
230201	New Commitment	Widen Coleman Avenue from 4 to 6 lanes from I-880 to Taylor Street	☑	☐	☐	☑	☑
230210	New Commitment	Rebuild box culvert under San Tomas Expressway	☑	☐	☐	☐	☐
230242	New Commitment	Add Capitol Expressway Traffic Operations System (TOS) between U.S. 101 and Almaden Expressway	☑	☐	☐	☐	☐
230246	New Commitment	Improve intersection at Lawrence Expressway and Prospect Road by adding a second left-turn lane and modifying the existing traffic signals	☑	☐	☐	☐	☑
230251	New Commitment	Improve expressway traffic operations system (TOS) in Santa Clara county (includes automated traffic count collection system, wireless controller communication system, wireless vehicular detection system, and signal and video infrastructure upgrades)	☑	☐	☐	☐	☐
230262	New Commitment	Construct a new interchange at U.S. 101 and Montague Expressway	☑	☐	☐	☑	☑
230265	New Commitment	Improve the operations of the intersection of Montague Expressway and Mission College Boulevard	☑	☐	☐	☐	☐
230267	Committed	Widen Montague Expressway to 8 lanes for HOV lanes between Lick Mill and Trade Zone boulevards and on Guadalupe River Bridge and Penitencia Creek Bridge	☑	☐	☐	☑	☑
230269	Committed	Construct a new interchange at Trimble Road and Montague Expressway	☑	☐	☐	☑	☑
230273	New Commitment	Widen Montague Expressway to 8 lanes between Trade Zone Boulevard and I-680 and to 6 lanes between I-680 and Park Victoria Drive for HOV lanes	☑	☐	☐	☑	☑
230292	New Commitment	Implement signal coordination between expressway and major cross-street signals in Santa Clara county	☑	☐	☐	☐	☐
230294	Committed	Conduct environmental and design studies to widen and create new alignment for Route 152 (from Route 156 to U.S. 101)	☐	☐	☑	☑	☐

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Santa Clara						
230298	New Commitment	Replace Calaveras Boulevard 4-lane bridge over the Union Pacific Railroad tracks with new 6-lane structure with bicycle and pedestrian facilities and circulation improvements	☑	☐	☐	☑
230302	New Commitment	Improve the intersection of Dixon Landing Road and North Milpitas Boulevard	☑	☐	☐	☐
230304	Committed	Widen Dixon Landing Road from 4 to 6 lanes between North Milpitas Boulevard and I-880	☑	☐	☐	☑
230339	Committed	Convert HOV queue-jump lanes along Central Expressway at Bowers Avenue to general purpose lanes	☑	☐	☐	☑
230347	New Commitment	Improve U.S. 101 southbound ramps at 10th Street	☑	☐	☐	☑
230350	New Commitment	Widen southbound U.S. 101 off-ramp at Cochrane Road from 2 to 3 lanes	☑	☐	☐	☑
230356	Committed	Construct interchange at Lawrence Expressway and Arques Avenue	☐	☑	☐	☑
230363	Committed	Construct interchange at I-880 and Montague Expressway (includes improvements to Montague Expressway)	☑	☐	☐	☑
230385	New Commitment	Purchase and install emergency vehicle pre-emption detectors and video detection cameras at signalized intersections in downtown Palo Alto	☑	☐	☐	☐
230407	New Commitment	Widen Route 17 off-ramp southbound at Hamilton Avenue	☑	☐	☐	☑
230445	New Commitment	Improve Great America Parkway and Mission College Boulevard intersection (includes adding triple left-turn lanes in two directions and traffic signal upgrades)	☑	☐	☐	☐
230449	New Commitment	Extend Charcot Avenue over I-880 as a new 2-lane roadway with bicycle and pedestrian improvements to connect to North San Jose employment center	☑	☐	☐	☑
230451	New Commitment	Rehabilitate Fatjo Place, Thompson Place, Arguello Place, Bray Avenue and Graham Lane	☑	☐	☐	☐
230452	New Commitment	Convert downtown one-way couplets to two-way streets along 10th/11th Streets, Almaden Boulevard/Vine Street and 2nd/3rd Streets	☑	☐	☐	☑
230456	Committed	Widen Zanker Road from 4 to 6 lanes	☑	☐	☐	☐
230457	New Commitment	Improve Oakland Road from U.S. 101 to Montague Expressway by providing landscaping and operational improvements	☑	☐	☐	☑
230458	New Commitment	Widen Berryessa Road from U.S. 101 to I-680 to provide access to planned Berryessa BART station	☐	☑	☐	☑
230459	New Commitment	Extend Chynoweth Avenue from Almaden Expressway to Winfield Road	☐	☑	☐	☑

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Santa Clara							
230460	New Commitment	Widen Snell Avenue from Branham Lane to Chynoweth Avenue	☐	☑	☐	☐	☑
230461	New Commitment	Widen Branham Lane from Vista Park Drive to Snell Avenue (includes bicycle and pedestrian facilities)	☑	☐	☐	☐	☑
230469	Committed	Make local circulation improvements on Santa Teresa Boulevard (includes medians, landscaping, sidewalks and bicycle lanes)	☑	☐	☐	☐	☐
230471	Committed	Widen intersections and improve sidewalks throughout the city of Sunnyvale	☐	☑	☐	☐	☐
230492	Committed	Implement local roadway improvements to Old Oakland Road over U.S. 101	☑	☐	☐	☐	☐
230531	Committed	Construct auxiliary lanes on U.S. 101 in Mountain View and Palo Alto, from Route 85 to Embarcadero Road	☑	☐	☐	☑	☑
230532	Committed	Improve interchange at Route 237/North 1st Street	☐	☑	☐	☑	☑
230534	Committed	Electrify Caltrain line from Tamien Station to Gilroy	☐	☐	☑	☐	☑
230547	Committed	Implement Bus Rapid Transit (BRT) on Monterey Highway	☐	☑	☐	☐	☑
230551	Committed	Implement the Zero Emissions Bus (ZEB) program	☑	☐	☐	☐	☐
230552	Committed	Install and modify VTA facilities to support the Zero Emissions Bus (ZEB) program	☐	☑	☐	☐	☐
230554	Committed	Implement Bus Rapid Transit (BRT) between Sunnyvale and Cupertino	☐	☑	☐	☐	☑
230573	New Commitment	Improve ramps and intersections on Fremont and Bernardo avenues at Route 85	☑	☐	☐	☐	☐
230574	Committed	Improve the Route 85/Cottle Road interchange	☑	☐	☐	☑	☑
230577	New Commitment	Improve ramp and intersection on Route 152 eastbound at Bloomfield Avenue	☑	☐	☐	☐	☐
230579	New Commitment	Improve ramp/intersection on Route 152 eastbound at Frazier Lake Road	☑	☐	☐	☐	☐
230584	New Commitment	Improve ramp/intersection at Route 152 westbound at Watsonville Road	☑	☐	☐	☐	☐
230595	Committed	Implement Bus Rapid Transit (BRT) on Stevens Creek Boulevard from Diridon Station to DeAnza College	☑	☐	☐	☐	☑
230641	Committed	Implement bicycle and pedestrian improvements in North San Jose	☑	☐	☐	☐	☐
230644	Committed	Implement miscellaneous intersection improvements in North San Jose	☑	☐	☐	☑	☐
230645	Committed	Implement improvements to the North First Street Core Area grid	☑	☐	☐	☑	☐

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** Projects amended into the 2009 TIP Amendment #09-06

Reference Number	Investment*	Project/Program	Complete and Operational By			2009 TIP/ #09-06**	Reg'l Signif.
			2015	2025	2035		
Santa Clara							
230698	New Commitment	Local streets and roads maintenance	☐	☐	☑	☑	☐
230705	Committed	Improve local interchanges and auxiliary lanes	☐	☐	☑	☑	☐
230706	Committed	Make local streets and roads improvements (includes street channelization, overcrossings, bicycle and pedestrian access, and safety improvements)	☐	☐	☑	☐	☐

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			2015	2025	2035		
Solano							
21341	New Commitment	Construct new Fairfield/Vacaville multimodal train station for Capitol Corridor intercity rail service (Phases 1, 2 and 3)	☑	☐	☐	☐	☑
22629	New Commitment	Construct new Vallejo Baylink Ferry Terminal (includes additional parking, upgrade of bus transfer facilities and pedestrian access improvements)	☑	☐	☐	☐	☑
22630	Committed	Improve Parkway Boulevard overcrossing over Union Pacific Railroad tracks	☑	☐	☐	☐	☐
22631	Committed	Construct Route 12 westbound truck climbing lane at Red Top Road	☑	☐	☐	☐	☑
22632	Committed	Widen American Canyon Road overpass at I-80	☑	☐	☐	☐	☑
22633	Committed	Widen Azuar Drive/Cedar Avenue from 2 to 4 lanes between P Street and Residential Parkway (includes bicycle lanes, railroad signals and rehabilitation improvements)	☑	☐	☐	☐	☐
22634	Committed	Construct an adjacent 200-space, at-grade parking lot at the Vacaville Intermodal Station (Phase 1)	☑	☐	☐	☐	☑
22700	New Commitment	Construct parallel corridor north of I-80 from Red Top Road to Abernathy Road	☑	☐	☐	☐	☑
94151	New Commitment	Construct 4-lane Jepson Parkway from Route 12 to Leisure Town Road	☑	☐	☐	☐	☑
230311	Committed	Widen and improve Peterson Road with the addition of a truck-stacking lane (includes drainage improvements)	☑	☐	☐	☐	☐
230322	Committed	Rebuild and relocate eastbound Cordelia Truck Scales Facility (includes a new 4-lane bridge across Suisun Creek and new ramps at eastbound Route 12 and eastbound I-80)	☑	☐	☐	☐	☑
230326	New Commitment	Improve I-80/I-680/Route 12 interchange, including connecting I-680 northbound to Route 12 westbound (Jamieson Canyon), adding connectors and reconstructing local interchanges (Phase 1)	☑	☐	☐	☐	☑
230468	New Commitment	Provide auxiliary lanes on I-80 in eastbound and westbound directions from I-680 to Air Base Parkway (includes a new eastbound mixed flow lane from Route 12 east to Air Base Parkway)	☐	☑	☐	☐	☑
230635	New Commitment	Construct new 400-space parking garage at the Vacaville Intermodal Station (Phase 2)	☑	☐	☐	☐	☑
230650	Committed	Widen I-80 from Red Top Road to Air Base Parkway to add HOV lanes in both directions (includes pavement rehabilitation and ramp metering)	☑	☐	☐	☐	☑
230699	New Commitment	Local streets and roads maintenance	☐	☐	☑	☐	☐
230708	Committed	Improve local interchanges and auxiliary lanes and make local streets and roads improvements (includes street channelization, overcrossings, bicycle and pedestrian access, and safety improvements)	☐	☐	☑	☑	☐

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			2015	2025	2035		
Sonoma							
21070	Committed	Realign and widen Route 116 (Stage Gulch Road) along Champlin Creek to improve safety, adding shoulders to accommodate pedestrians and bicyclists	☑	☐	☐	☐	☑
21884	Committed	Construct Petaluma crosstown connector/interchange	☐	☑	☐	☑	☑
21902	Committed	Widen U.S. 101 for HOV lanes from Pepper Road to Rohnert Park Expressway (Central Phase A)	☑	☐	☐	☑	☑
21908	Committed	Study the environmental impacts of a future Port Sonoma ferry service and facility	☐	☑	☐	☐	☐
22190	New Commitment	Improve channelization and traffic signalization at Route 116/Route 121 intersection (includes Arnold Drive improvements)	☑	☐	☐	☐	☐
22191	New Commitment	Improve U.S. 101 North/Airport Boulevard interchange (includes widening Airport Boulevard to 2 lanes in each direction and adding turn lanes)	☑	☐	☐	☑	☑
22193	New Commitment	Construct new bypass on Route 116 in Forestville	☐	☑	☐	☐	☑
22194	New Commitment	Improve safety on Mark West Springs Road/Porter Creek Road (includes adding standard shoulders and turn pockets)	☐	☑	☐	☐	☐
22195	New Commitment	Improve U.S. 101/Old Redwood Highway interchange (includes modifying/replacing existing 2-lane interchange to at least a 5-lane interchange and improving ramps)	☑	☐	☐	☑	☑
22197	New Commitment	Improve local circulation at various locations in Town of Penngrove (includes improvements to Main Street, Petaluma Hill Road, Adobe Road, Old Redwood Highway and U.S. 101/Railroad Avenue)	☐	☑	☐	☐	☐
22203	New Commitment	Improve channelization and traffic signalization on River Road from Fulton Road to the town of Guerneville	☐	☑	☐	☐	☐
22204	New Commitment	Widen Fulton Road from 2 to 4 lanes from Guerneville Road to U.S. 101 and construct Route 12/Fulton Road interchange	☐	☐	☑	☐	☑
22205	New Commitment	Improve U.S. 101/Hearn Avenue interchange (includes widening overcrossing and ramps)	☐	☑	☐	☐	☑
22207	New Commitment	Extend Farmers Lane from Bellevue Avenue to Bennett Valley Road as a 3-lane or 4-lane arterial (includes a bicycle lane and sidewalk)	☐	☑	☐	☑	☑
22438	New Commitment	Improve Bodega Highway west of Sebastopol (includes straightening curves near Occidental and adding turn pockets)	☐	☑	☐	☐	☑
22490	New Commitment	Convert bridges in Sonoma County from 1-lane to 2-lane	☐	☑	☐	☑	☐
22652	Committed	Rehabilitate pavement on U.S. 101 from Steele Lane to Grant Avenue overhead in Healdsburg	☑	☐	☐	☐	☐

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			2015	2025	2035		
Sonoma							
22655	Committed	Widen U.S. 101 for HOV lanes (one in each direction) from Rohnert Park Expressway to Santa Rosa Avenue (includes interchange improvements and ramp metering)	☑	☐	☐	☐	☑
22656	New Commitment	Improve U.S. 101/East Washington Street interchange (includes new northbound on-ramp and improvements to southbound on-ramp)	☑	☐	☐	☐	☑
94689	New Commitment	Improve U.S. 101/Arata Lane interchange in Windsor, including new on- and off-ramps and realignment of Los Amigos Road north of Arata Lane (Phase 4)	☑	☐	☐	☐	☑
94691	New Commitment	Install traffic signal system on Route 121 and improve channelization at 8th Street	☐	☑	☐	☐	☑
98183	Committed	Widen U.S. 101 for HOV lanes between Steele Lane and Windsor River Road (Phase A)	☑	☐	☐	☐	☑
230341	New Commitment	Improve channelization and traffic signalization on Mirabel Road and Route 116	☑	☐	☐	☐	☐
230345	New Commitment	Rehabilitate or replace existing Healdsburg Avenue Bridge	☑	☐	☐	☐	☐
230437	New Commitment	Provide infrastructure for two high-frequency Bus Rapid Transit corridors in Santa Rosa (includes vehicle purchases, infrastructure such as bus stops/intermodal nodes, and technology support)	☑	☐	☐	☑	☐
230442	New Commitment	Implement service enhancements for Santa Rosa CityBus (includes technology enhancements such as video, automatic vehicle location and farebox upgrades, operations and maintenance facilities improvements and vehicle purchases)	☐	☐	☑	☐	☐
230700	New Commitment	Local streets and roads maintenance	☐	☐	☑	☐	☐

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** Projects amended into the 2009 TIP Amendment #09-06

Appendix C
Travel Forecast Assumptions for the Transportation 2035 Plan and 2009 TIP Amendment #09-06

Travel Forecasting Assumptions for Conformity Analysis of Transportation 2035 Plan and 2009 Transportation Improvement Program/Amendment # 09-06

This report documents the travel forecasting assumptions for the 2009 Regional Transportation Plan (RTP), and includes the following analysis years: 2006, 2015, 2025, and 2035. The analysis is based on the "latest planning assumptions" as documented below. In addition, the current conformity analysis also uses the latest upgrades to the MTC travel demand forecast model, which was updated and re-validated to a 2006 base year in Spring 2008.

The vehicle travel forecasts from the MTC travel demand model are then used in conjunction with the California Air Resource Board's (ARB) motor vehicle emission model (EMFAC2007) to estimate total regional on road motor vehicle emissions.

In preparing these travel forecasts, MTC uses four basic sets of assumptions:

- Pricing Assumptions;
- Travel Behavior Assumptions;
- Demographic Assumptions; and
- Highway and Transit Network Assumptions.

Demographic and detailed highway and transit network definition assumptions are not included in this appendix. The RTP travel forecasts are based on the socio-economic/land use forecast series *Projections 2007,* developed by the Association of Bay Area Governments (ABAG). These projections reflect the new regional "Smart Growth" land use assumptions and have been approved for use in the conformity analysis by the US DOT and EPA, subject to periodic preparation of a monitoring report by ABAG to examine results and review assumptions used in the projections. The projections also reflect the near term effects of the current economic slowdown on job creation in the Bay Area.

Pricing assumptions include projected parking prices; gasoline and non-gasoline auto operating costs; fuel economy; bridge tolls; and transit fares.

Travel behavior assumptions include trip peaking factors, vehicle occupancy factors, and estimates of interregional commuters.

Additional travel forecasting methodology issues are addressed in this report. These are special methodological issues related to air quality and mobile source emissions inventories. The methodology issues include:

- Commercial Vehicle Methodology;
- Speed Post-Processing Methodology;
- Distribution of VMT by Speed Methodology; and
- Adjustment of Regional VMT and Trips.

I. Pricing Assumptions

A. Parking Costs (Table 1)

The MTC demand models were estimated using nominal, or posted parking prices as opposed to actual parking prices. Actual parking prices would be the average parking price paid by a consumer, weighted by those who are subsidized by their employer and those who are not subsidized by their employer. For peak period parking cost, the monthly posted parking price is divided by 22 days per month to derive an average workday parking cost. The average workday parking cost is then divided by 8 hours to derive an average peak hour parking cost per hour in 1990 cents. In the home-based work mode choice model application, the per hour charge is multiplied by 8 hours, then divided by 2, to derive a per vehicle trip charge. Next, the per vehicle trip charge is divided by the vehicle occupancy so that parking costs are equally distributed between vehicle drivers and passengers.

Estimates for the years 2000 and 2035 peak hour and off-peak per hour parking costs are shown in Table 1. Data is shown for only the travel analysis zones with non-zero parking costs. This table also shows the change in net employment density, and the estimate of average monthly commuter parking costs, in 2008 current dollars.

The off-peak parking costs (per hour) are generally higher than the peak parking costs (per hour) since the peak parking costs are based on the discounted monthly parking rates, divided by 22 work days per month, divided by 8 hours per workday. The off-peak parking costs are reflective of mid-day, regular, not discounted parking costs.

The MTC assumption for parking costs is that they will change, in real terms, by the ratio of the net total employment density in the target year to the net employment density in the base year (2000).

MTC staff periodically inventory parking garages throughout the Bay Area to monitor trends in parking prices. The most recent update to this inventory was conducted fall 2000.

Auto Operating Costs (Table 2, 3, Figures 1, 2)

The MTC travel demand models are based on non-linear auto operating costs which vary according to trip speed and distance. As speed increases, the fuel consumption rate (gallons per mile) decreases linearly. As distance increases, the share of "cold start" fuel consumption decreases. This internal model is used to derive trip-specific fuel economy (miles per gallon) which is multiplied by the per gallon gas price to derive per trip gasoline operating cost. A constant non-gasoline operating cost per mile is multiplied by trip distance to get per trip non-gas cost. Total auto operating cost per trip is the sum of the gasoline cost per trip plus the non-gasoline cost per trip plus any bridge tolls or parking charges. Details on the auto operating cost model are included in the BAYCAST Users Guide (August 2004).

The MTC auto operating cost model is based on work conducted by Cambridge Systematics, Inc., as part of the *Urban Transportation Energy Conservation* study, published in 1978 (known as "UTEC"). The UTEC models were also used to derive auto operating costs for the Southern California Association of Governments' current set of travel demand models.

The basic inputs to the BAYCAST model system, in terms of auto operating cost, are gasoline price (in 1990 constant dollars); the fuel correction factor (to represent fleet turnover and more fuel efficient vehicles); and the non-gasoline operating cost (in 1990 cents per mile.) Data on historical, 1990 to 2008, and assumed future year auto operating costs are detailed in Table 3 and Figures 1 and 2.

This is the most challenging set of forecasting assumptions given the radical and recent escalation of gas prices over the 2008 calendar year. According to the AAA, late May 2008 gas prices range from $4.18 per gallon of regular unleaded in the North Bay to $4.23 in San Francisco. In the previous month (April 2008), gas prices ranged from $3.90 per gallon in the North Bay to $4.00 per gallon in San Francisco [http://www.fuelgaugereport.com/CAmetro.asp]. The United States Energy Information Administration (EIA) is showing national gas prices, for the week of 5/26/08, ranging from a low of $3.83 per gallon in Texas to $4.17 per gallon in Chicago, with a national average of $3.94 per gallon. From May 2007 to May 2008, the average national gas price increased from $3.21 per gallon to $3.94 per gallon, a 23 percent increase in 12 months.
[http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrgp/mogas_home_page.html]

To take into account recent gas price increases, MTC tested several linear regression models based on historical gas prices reported by the US Bureau of Labor Statistics (BLS). Data from April 1988 through April 2008 was used to produce various regression results, as shown in Table 2. Regressions based on 20 years of gas price data (1988-2008) would predict a $4.14/gallon gas price by the year 2035 (in today's dollars). The regression based on the past five years of gas price data (2003-2008) would extrapolate to $11.02/gallon by the year 2035 (again, in today's 2008 dollars).

MTC is using the 10-year regression model, based on published gas prices from April 1998 through April 2008, for the future year 2035 gas price (see Table 2 and Figure 1). This is $7.47 per gallon in today's dollars. This is comparable to current European petrol prices, which range from $4.70 per gallon in Estonia to $8.43 per gallon in Norway. (The closest to this $7.47 estimate is Germany, currently at $7.64/gallon, or 1.37 euros/liter.)

Gas price assumptions were finalized in late May 2008. Subsequent gas price data, published by the US Bureau of Labor Statistics, show that Bay Area gas prices peaked in June 2008 ($4.50/gallon), falling slightly to $4.49 per gallon in July, and settling back to $3.87 per gallon in September 2008 (see Figure 2).

The other major factor to consider in auto operating costs is the average fuel economy. MTC staff has estimated that the overall Bay Area fuel economy will increase from 19.86 miles per gallon in 2006 to 32.15 miles per gallon in 2035. This is based on MTC staff analysis of EMFAC2007 databases and models supplied by the California Air Resources Board (CARB), and takes into account the Pavley Phase I and Pavley Phase II regulations. MTC staff analysis shows that Pavley Phase I would increase Bay Area fuel economy to 27.91 mpg; and Pavley Phase II would further increase the overall fuel economy to 32.15 mpg. Note that these estimates are for light duty auto (LDA), small light duty trucks under 8,500 pounds (LDT1) and small light duty trucks over 8,500 pounds (LDT2).

The increase in overall fuel economy is a striking 59 percent increase between 2006 and 2035 (see Table 3). The increase in fuel economy is almost offset by the 76 percent real increase in gas price assumed between 2008 and 2035, such that the overall auto operating cost per mile is projected to increase by just 10 percent, from 20.9 cents/mile (2008$) to 23.2 cents/mile (2008$). This appears comparable to current European and Japanese-level gasoline prices and fuel economy.

The following table summarizes the horizon year auto operating cost assumptions used in MTC regional transportation planning activities over the past ten years. It is useful in showing the usefulness and need to re-evaluate latest planning assumptions on an ongoing basis.

Planning Study	Horizon Year	Gas Price (4/08$)	Fuel Economy (mpg)	Gas Price per Mile (4/08$)
1998 RTP	2020	$1.86	21.9	8.5 cents/mile
2001 RTP	2025	$2.26	21.9	10.3
2005 RTP	2030	$2.26	21.9	10.3
Vision 2035	2035	$3.93	27.7	14.2
Current, 2008	*2008*	*$4.20*	*20.1*	*20.9*
2009 RTP	2035	$7.47	32.2	23.2

The other key assumption is that non-gasoline operating cost (maintenance and repair, motor oil, parts, accessories) is 40 percent of total auto operating costs. This 40 percent figure is based on US Bureau of Labor Statistics data on consumer expenditures (see Table 4 of the MTC report: *Consumer Price Indices: Bay Area & U.S. Cities: 1950-2001.*) In a typical household, between five and six percent of a household's expenditures are related to auto operating costs. Gasoline cost has fluctuated from 55.6 percent to 73.5 percent of total auto operating costs over the past twenty years.

Auto ownership costs, which now comprise around 7.3 percent of the average household's budget, are not used in determining trip running, or variable costs. Auto ownership costs includes the cost of new or used vehicle purchasing and financing, insurance premiums, and vehicle registration and licensing fees. These fixed costs of auto ownership are more important in determining the number and quality of vehicles to own or lease. Given the difficulty in projecting automobile quality and costs, household income is used as a surrogate in predicting auto ownership levels.

C. Bridge Tolls (Table 4, Figure 3)

Year 2008 bridge tolls are used for all future year forecasts. This means that tolls will increase with inflation, so that their real value is not eroded.

Bay Area voters approved Regional Measure 2 on the March 2, 2004 general election. This measure increased the toll on all Bay Area state-owned bridges from $2.00 to $3.00 as of July 1, 2004. Since 1998, drivers on all Bay Area state-owned bridges have paid a $1 seismic surcharge to help finance a seismic retrofit program to strengthen and reinforce bridge structures and roadways on five of the bridges in the event of a major earthquake. On January 1, 2007 the seismic surcharge increased to $2 per vehicle, resulting in the current, $4.00 per passenger vehicle toll.

In previous conformity analyses, toll cost assumptions assumed no further increase in tolls, with the value of the toll decreasing, in real dollar terms, with an assumed inflation rate. For the 2009 Regional Transportation Plan, MTC is now assuming that tolls for Bay Area bridges will keep pace with inflation, similar to the standard assumption that transit fares will keep pace with inflation. Bay Area state-owned bridge tolls are assumed to remain at $4.00 (in 2008 current dollars) for the duration of the long-range planning period (Table 4, Figure 3).

This means that tolls will increase to about $4.89 per passenger vehicle in 2015, to $6.50 per passenger vehicle by 2025, and to $8.66 per passenger vehicle by 2035. These dollar values are in current dollar terms, and reflect a 2.9 percent per year annual inflation assumption.

For purposes of travel forecasting, the one-way toll is halved so that both directions on every bridge are allocated one-half of the total average toll. This is a technical necessity to counter the toll collection direction bias.

D. Transit Fares (Table 5, Figures 4.1, 4.2, 4.3)

Year 2008 transit fares are used for all future year forecasts. This means that fares will increase with inflation, so that their real value is not eroded. This assumption is borne out by past fare trends, and reflects the ongoing need for transit operators to periodically adjust their fares to keep up with increased labor costs, maintain their local contribution to capital replacement projects, and pay for increases in the cost of fuel and other supplies.

Changes in Bay Area transit operator fares, 1998 to 2008, are summarized in Table 5. Transit fares in place as of June 1, 2008 were used as the base assumption for all 2009 RTP forecasts.

Historical and projected base fares are charted in Figure 4.1 (Muni), Figure 4.2 (AC Transit), and Figure 4.3 (BART). These charts show base transit fares in current and 1990 constant dollars. The current dollar fares are based on a 2.9 percent per year increase in consumer price indices through the Plan forecast period.

II. Travel Behavior Assumptions

A. Vehicle Peaking Factors (Tables 6, 7)

A new methodology introduced in the 2009 Regional Transportation Plan is intended to produce better estimates of "congested" travel times and speeds by time period for an average weekday. Previous work focused on generating estimates of AM peak period congested travel times and speeds; and free-flow travel times and speeds. This new methodology produces consistent estimates of congestion and VMT for five time periods of the day.

The standard output of the travel demand modeling system is daily person trips by trip purpose and travel mode. The in-vehicle person trips are converted into daily vehicle driver trips using either simple factors (1.0 for drive alone trips; 2.0 for shared ride two-occupant trips; 3.5 for shared ride three-or-more-occupant trips), or using the "vehicle driver" mode that is the standard output in the non-home-based and school trip mode choice models.

Daily vehicle trips are then split into vehicle trips for five time periods:

- Early Morning (0000-0600 military time);
- AM Peak (0600-1000);
- Midday (1000-1500);
- PM Peak (1500-1900); and
- Evening (1900-2400).

Peaking factors by trip purpose by time-of-day are derived from the Year 2000 Bay Area Travel Survey (BATS2000). The base year peaking factors used in the 2000 and 2006 base year forecasts are summarized in Table 6. The column labeled "purpose/direction" provides details on the trip purpose (HBW is home-based work) and direction (e.g., H2W is the home-to-work, W2H is the work-to-home direction).

The BAYCAST system directly simulates the number of AM peak period home-to-work vehicle trips, derived from the home-to-work departure time choice model. This is basically a "peak spreading" model that will predict fewer trips in the peak period when congestion levels increase.

Previous applications of the MTC home-to-work departure time choice model show a 6.8 percent reduction in the share of home-to-work trips occurring in the AM peak period, comparing 2006 to earlier 2035 forecasts. This result was then applied to both the AM and the PM peak period factors, shown in Table 6, to derive the time-of-day factors for forecast years, summarized in Table 7. To compensate for the 6.8 percent reduction in the share of trips occurring in the AM and PM peak periods, the peaking factors for the early morning, midday, and evening periods were increased so that all trips would be accounted for on a daily basis.

B. Interregional Commuters

Assumptions about the number of interregional commuters is key in two respects: first, intraregional home-based work productions and attractions need to be adjusted to reflect in-commuting and out-commuting from and to Bay Area jobs and households; second, interregional vehicle trips are needed to augment the intraregional trips included in the standard BAYCAST travel demand models. Interregional trips were updated to reflect Census 2000 journey-to-work data and commuter sketch planning forecasts.

Interregional commuters are estimated by factoring the Census 2000 journey-to-work data file using a 46-by-46 matrix that comprises the 34 Bay Area superdistricts and the 12 Bay Area neighbor counties. These sketch planning commuter forecasts are prepared for the years 2010, 2020 and 2030 and interpolated and extrapolate for conformity analysis years. This is basically a "sketch planning" effort to complement the formal models used to predict intraregional personal and intraregional commercial travel.

III. Demographic Assumptions

MTC used ABAG's Projections 2007 forecasts (adopted December 2006) for future year population and employment assumptions and for the geographic distributions of residents and jobs throughout the region.

For use in MTC's travel demand model, MTC combines and allocates ABAG's tract-level forecasts to MTC's 1454 regional travel analysis zone system for all years.

MTC summaries of the ABAG Projections 2007 databases, at the county and MTC 34 superdistrict level, are available on MTC's FTP site, at: ftp://ftp.abag.ca.gov/pub/mtc/planning/ZoneData/Proj2007/

IV. Transportation Network Assumptions

A major part of the RTP conformity analysis is the definition of highway, transit, and pedestrian/bicycle networks for various analysis years. These networks describe the supply of transportation capacity and various service characteristics that influence travel behavior.

Projects assumed in the transportation network for the various analysis years are listed in Appendices B of this conformity report.

Transit operator service levels have significantly changed between 2000 and 2008, due to the economic decline and the need to reduce service on some routes. The most extensive service level changes were to SamTrans and AC Transit District (Newark, Union City routes), Golden Gate and SCVTA.

V. Commercial Vehicle Methodology

The MTC BAYCAST commercial vehicle models are based on the truck trip generation models developed for Caltrans and Alameda County as part of the 1992 I-880 Intermodal Corridor Study; and truck trip distribution models documented in the 1996 report "Quick Response Freight Manual" produced by the US Department of Transportation (usable truck trip distribution models were not developed for the I-880 Intermodal Corridor Study).

These truck models are specifically limited to larger trucks of six-or-more tires. There are three sub-purposes to the MTC truck models: 1. "Small Trucks" (two-axle, six-tire vehicles); 2. "Medium Trucks" (three-axle vehicles); and 3. "Combination Trucks" (four-or-more axle vehicles).

Beginning in 2004, MTC has introduced a "very small, two-axle four-tire" commercial vehicle truck trip purpose. The "very small truck" trip model is borrowed from the Phoenix, Arizona MPO, as documented in the FHWA "Quick Response Freight Manual." Before 2004, these very small truck trips were indirectly estimated by increasing non-home-based vehicle trips.

The following sidebar summarizes the MTC BAYCAST truck trip generation and distribution models, including the very small truck trip models:

Garage-Based Truck Trip Production Models
Two-Axle Truck Productions = 0.011 * MFGEMP + 0.014 * RETEMP + 0.0105 * SEREMP + 0.046 * OTHEMP
Three-Axle Truck Productions = 0.0014 * MFGEMP + 0.00012 * RETEMP + 0.0037 * OTHEMP
Four-+-Axle Truck Productions = 0.0044 * MFGEMP + 0.0027 * SEREMP + 0.0084 * OTHEMP

Garage-Based Truck Trip Attraction Models
Two-Axle Truck Attractions = 0.0234 * TOTEMP
Three-Axle Truck Attractions = 0.0046 * TOTEMP
Four-+-Axle Truck Attractions = 0.0136 * TOTEMP

Non-Garage-Based Truck Trip Production & Attraction Models
Two-Axle Truck Productions and Attractions = 0.0324 * TOTEMP
Three-Axle Truck Productions and Attractions = 0.0039 * TOTEMP
Four-+-Axle Truck Productions and Attractions = 0.0073 * TOTEMP

Very Small Truck Trip Production & Attraction Models
Productions = 0.251 * TOTHH + 1.110 * AGREMP + 0.938 * MFGEMP +
0.938 * TRDEMP + 0.888 * RETEMP + 0.437 * SEREMP + 0.663 * OTHEMP2
Where:
MFGEMP = Manufacturing Employment
RETEMP = Retail Employment
SEREMP = Service Employment
OTHEMP = Other Employment (Wholesale Trade, Agriculture/Mining, Other)
AGREMP = Agricultural + mining Employment
TRDEMP = Wholesale Trade Employment
OTHEMP2 = Other Employment (Agriculture/Mining + Other)
TOTEMP = Total Employment
TOTHH = Total Households

Truck Trip Distribution Models: Gravity Models based on AM Peak Period Travel Time
Two-Axle Truck Trip Distribution Friction Factor: $FF_{ij} = \exp(-0.08 * TT_{ij})$
Three-Axle Truck Trip Distribution Friction Factor: $FF_{ij} = \exp(-0.1 * TT_{ij})$
Four-+-Axle Truck Trip Distribution Friction Factor: $FF_{ij} = \exp(-0.03 * TT_{ij})$
Very Small Truck Trip Distribution Friction Factor: Built off of NHB trip distribution model

In terms of mobile source emissions inventories, the MTC estimates of mobile source emissions are based on the "default" vehicle type and vehicle technology mix assumed by the California Air Resources Board (CARB) in their EMFAC/BURDEN model series. The CARB assumptions on vehicle type mix are based on the same Caltrans databases and truck counts as used by MTC in model validation, only adjusted by CARB staff to conform to the weight-based vehicle classes needed as input to the EMFAC emission factor models.

VI. Traffic Assignment Methodology (Table 8)

The MTC BAYCAST models were updated and re-validated to a 2006 base year in Spring 2008. A major part of this effort was the validation of traffic assignments to observed daily traffic volumes, and observed AM peak period traffic volumes and speeds on Bay Area freeways.

Previous conformity analyses required a speed post-processing methodology to correct for overly fast expressway and arterial speeds. This speed post-processing methodology has been eliminated in the forecasts from 2004 to the present, and replaced with a consistent set of speeds used in all model components. What was formerly the "post-processing" methodology is now the "main processing" methodology. This means that reduced free-flow arterial and expressway speeds that were only incorporated in a post-processing traffic assignment stage are now used throughout the MTC model system: as inputs to the trip distribution, mode choice, as well as traffic assignment stages.

The standard set of speed-flow models used in the MTC model system includes an MTC variation on the "BPR" curve, and application of the "Akçelik" speed-flow curve documented in previous MTC research. The "MTC Breakdown Curve" is used for freeways and freeway-to-freeway segments; the "Akçelik Curve" is used for expressways, collectors, freeway ramps, major arterials and metered ramps.

MTC assumptions of per lane capacity and free-flow speed are "lookup" tables based on facility type (freeway, major arterial, etc.) and area type (rural, suburban, etc.) Area types are based on "area density,"

a combined measure of population and employment density. Current and former sets of free-flow speeds are shown in Table 8.

The following box summarizes the MTC standard and post-processing set of speed-flow models.

MTC Standard & Post-Processing Set of Speed-Flow Models

MTC Breakdown Curve (Freeways & Freeway-to-Freeway Facilities)

$t = t_o * (1 + 0.20 * ((x)/0.75)^6)$

Akçelik Curve (All Other Facilities)

$t = t_o + \{0.25 * T * [(x-1) + ((x-1)^2 + (16 * Ja * L^2/T^2))^0.5]\}$

where:
t = average travel time per unit distance (hours/mile)
t_o = free-flow travel time per unit distance (hours/mile)
T = flow period, i.e., the time interval in hours during which an average arrival (demand) flow rate, v, persists
Q = capacity
x = the degree of saturation, i.e., v/Q
Ja = the delay parameter (Expressway = 0.2, Collector=1.2, Freeway Ramp=0.17, Major Arterial=0.4, Metered Ramp=0.2)
Ja = the delay parameter (Post-Processing = calculated for each facility type, area type combination, where: Ja = (Tc - To)^2 / L^2 and "Tc" is the critical speed at V/C ratio of 1.0)
L = Link length (miles)

Significant changes to traffic assignment methodology from previous conformity analyses include the following two improvements:

1. Traffic assignment equilibration "convergence criteria" was tightened up as a result of the project level performance analyses. Traditional MTC traffic assignment practice has been to use the "default closure convergence criteria" included in the MTC network software package (Cube/Voyager), which is "GAP=0.005." After discussions with other professionals, and extensive testing, MTC staff converted to a more stringent "relative gap" closure criteria, with a "RELGAP=0.001". This results in about a 3 percent decrease in peak period vehicle hours of delay. More information is available in an April 2008, MTC powerpoint presentation: "The Urge to Converge: Minding the Gap in Voyager Traffic Assignment" (April 2008).
2. Peak spreading assumptions were used in new procedures for time-of-day-based, daily traffic assignments. Traditional MTC daily traffic assignment practice (before 2008) was to assign AM and PM peak period trips to an "all-or-nothing" basis on congested AM travel times; and all of the off-peak period trips, on an "all-or-nothing" basis, to free flow travel times, to derive average daily traffic volumes on the regional networks. MTC replaced this approach with a set of daily traffic assignments, using an equilibrium traffic assignment methodology, for five time periods: early morning (0000-0600 military time); AM peak period (0600-1000); midday (1000-1500); PM peak period (1500-1900); and evening (1900-2400). This means that we have "congested" speeds for all five time periods of the average weekday. In addition to this improvement, we used information from the MTC home-to-work time-of-day choice model, which shows that the share of regional home-to-work trips occurring in the two-hour AM peak period is projected to decrease by 6.8 percent between 2006 and 2035. We used this 6.8 percent decrease to downwardly adjust the share of vehicle trips occurring in both the AM and the PM peak periods, and to upwardly adjust the share of vehicle trips occurring in the three "off-peak" periods. This is a significant change which tends to "flatten the peak periods" for the AM and PM peak period traffic assignments, and to show increased congestion in other time periods, mostly the midday and evening periods.

VII. Adjustment of Regional VMT and Trips Methodology

Regional VMT and engine starts (needed for emission calculations) are forecasted using a combination of output from MTC's travel demand forecasting model and base year (1999) VMT information provided by the California Air Resources Board (ARB). The ARB base year VMT comes from the State Bureau of Automotive Repair's (BAR) biennial inspection/maintenance odometer records for registered Bay Area

vehicles. MTC then "grows" this VMT consistent with the growth in VMT projected in MTC's regional travel model forecasts.

The BAR-based VMT will over-estimate Bay Area VMT by including Bay Area-registered vehicle travel occurring outside the nine-county region. The BAR-based VMT method will also not include Bay Area VMT by non-resident vehicular travel occurring inside the nine-county region. ARB considers that these anomalies offset each other, and that the resulting regional VMT level is a conservatively high value. In comparison, MTC estimates 140,116 thousand VMT per weekday in year 2000. The 1999 ARB estimates, based on BAR inspection/maintenance data, shows 157,359 thousand VMT per weekday.

For conformity purposes, MTC agreed to follow ARB's protocol for estimating VMT. Using MTC growth estimation data, the 1999 ARB VMT estimate was adjusted to establish a new 2000 ARB baseline VMT estimate for mobile source emission inventory calculations in the Bay Area. MTC calculated that the ARB estimated VMT in year 2000 is 164,073. For comparative purposes, below is a table showing the differences in MTC and ARB's VMT estimates from the 2001 RTP and 2007 TIP. These year 2000 estimates have not been updated for the 2009 RTP.

Base Year 2000, Average Weekday Daily VMT

	2001 RTP	**2007 TIP**
ARB	159,642*	164,073
MTC	134, 256	140,116
% Difference	-16%	-15%

*Source: San Francisco Bay Area-EMFAC2000

MTC used the 2000 ARB baseline VMT of 164,073 to develop VMT estimates for the remaining analysis years – 2006, 2007, 2015, 2025, and 2035. Annual compounded growth rates were then updated and applied to generate regional VMT totals for this conformity analysis.

Regional VMT Growth Rates for the 2009 RTP Conformity Analysis

Analysis Year Time Frame	MTC Model VMT	Percent Change	Annual Growth Rate
2000-2006	2006 = 144,985	3.47%	0.6%
2006-2015	2015 = 158,374	9.23%	1.0%
2015-2025	2025 = 174,843	10.40%	1.0%
2025-2035	2035 = 191,456	9.50%	0.9%

Regional engine starts (which generate event-specific emissions) are based on ARB's estimate of approximately 6.72 to 6.75 engine starts per vehicle per day. This 6.75 engine starts per day value is based on a small-scale survey of instrumented Sacramento-area vehicles conducted by ARB. This contrasts to other Bay Area, California and National surveys that show trip rates ranging from 2.5 to 3.5 vehicle trips per vehicle per day. For more discussion on this engine starts per vehicle issue, refer to the November 24, 1999 letter from the MTC to the California Air Resources Board. ARB and MTC have also agreed to continue working on this issue.

VIII. Distribution of VMT by Speed Methodology (Table 9-12)

An important input to ARB's EMFAC 2007 mobile source emissions inventory model are county-level files of the share of vehicle miles travel by speed cohort, by time of day. Data is produced for 13 speed cohorts and 5 time-of-day periods (0000-0600, 0600-1000, 0900-1500, 1500-1900 and 1900-2400). Regional average weekday daily totals of VMT by the 13 speed cohorts for 2006, 2015, and 2035 are summarized and charted in Table 9. These VMT values include intra-zonal VMT and terminal distance VMT. Regional average weekday VMT by time-of-day by the 13 speeds cohorts for 2006, 2015 and 2035 are also summarized and charted in Tables 10 through 12.

The first step in preparing the VMT-by-speed share file is the preparation of daily traffic assignments by the five time periods.The "loaded" daily highway network with congested speeds and volumes for the five time periods are then exported into text files and subsequently imported into SAS (Statistical Analysis System) for further post-processing. Daily assignment volumes are then multiplied by link distance to yield vehicle miles of travel (VMT) by link, which are in turn summarized at the county-of-occurrence by speed-cohort level by the five time periods of the day, and average weekday daily totals.

There are three components of regional VMT: interzonal VMT that is assigned to highway networks; intra-zonal VMT that is not assigned to highway networks; and terminal distance VMT that is not assigned to highway networks.

Intra-zonal vehicle trips are not assigned to highway networks. The VMT associated with intra-zonal vehicle trips is derived by exporting the intra-zonal vehicle trips and intra-zonal door-to-door distance data into a format compatible with SAS, and for merging with the daily traffic assignment SAS files. Intra-zonal VMT is approximately 7.2 to 7.5 percent of regional VMT in 2000 and in future years. SAS routines are then used to apply the "terminal distance" vehicle miles of travel to the inter-zonal and intra-zonal VMT. "Terminal distance" VMT is defined as the amount of travel from the "average household" or "average activity location" in a travel analysis zone to the nearest highway link represented in the regional highway networks.

These speed distributions were then applied to passenger cars (PC), light-duty trucks (T1, T2), medium-duty trucks (T3), and motorcycles (mcy) in EMFAC 2007. EMFAC2007 model defaults were used on all other vehicle types and times of day.

Table 1
Peak and Off-Peak Parking Cost Assumptions by Bay Area Regional Travel Analysis Zones
Parking Costs in 1990 cents per hour

zone	City	Neighborhood	Peak Parking Costs, 2000	Off-Peak Parking Costs, 2000	Net Employment Density, 2000	Net Employment Density, 2035	Ratio of 2035 to 2000 Net Employment Density	Peak Parking Costs, 2035	Off-Peak Parking Costs, 2035	Year 2035 Commuter Cost/Month (2008$)
1	San Francisco	Financial District	160	525	1,397.9	1,493.3	1.068	171	561	$505.78
2	San Francisco	Financial District	160	525	1,372.1	1,563.5	1.140	182	598	$539.50
3	San Francisco	Union Square	160	525	1,314.0	1,497.0	1.139	182	598	$539.39
4	San Francisco	Financial District	140	230	1,403.9	1,515.6	1.080	151	248	$447.23
5	San Francisco	Union Square	140	230	1,464.5	1,668.9	1.140	160	262	$472.09
6	San Francisco	Tenderloin	110	400	483.1	495.9	1.026	113	411	$334.09
7	San Francisco	Tenderloin	150	440	518.9	556.1	1.072	161	472	$475.69
8	San Francisco	Tenderloin	85	325	232.7	324.7	1.396	119	454	$351.05
9	San Francisco	Civic Center	70	115	348.8	396.2	1.136	79	131	$235.25
10	San Francisco	South of Market	65	200	313.5	564.3	1.800	117	360	$346.19
11	San Francisco	South of Market	85	190	346.5	624.6	1.802	153	342	$453.36
12	San Francisco	South of Market	130	570	825.9	1,032.3	1.250	162	712	$480.84
13	San Francisco	South of Market	130	570	897.7	1,063.2	1.184	154	675	$455.60
14	San Francisco	South of Market	145	600	865.7	1,082.1	1.250	181	750	$536.34
15	San Francisco	South of Market	145	600	868.2	1,007.8	1.161	168	697	$498.08
16	San Francisco	South of Mission	120	390	331.5	464.4	1.401	168	546	$497.49
17	San Francisco	South of Mission	80	350	351.3	499.6	1.422	114	498	$336.69
18	San Francisco	South of Mission	70	200	155.8	185.0	1.188	83	238	$246.02
19	San Francisco	South of Mission	60	165	156.4	185.7	1.187	71	196	$210.83
20	San Francisco	South of Mission	60	165	187.7	294.1	1.567	94	259	$278.17
21	San Francisco	South of Mission	90	260	176.9	284.9	1.611	145	419	$429.05
22	San Francisco	Embarcadero	140	385	545.1	535.2	1.000	140	385	$414.27
23	San Francisco	East of Telegraph Hill	120	300	575.7	549.9	1.000	120	300	$355.09
24	San Francisco	Jackson Square	170	550	776.3	776.9	1.001	170	550	$503.40
25	San Francisco	Chinatown	170	250	455.8	520.0	1.141	194	285	$573.96
26	San Francisco	Chinatown	170	250	847.8	800.0	1.000	170	250	$503.05
27	San Francisco	Chinatown	170	250	190.2	286.5	1.507	256	377	$757.87
28	San Francisco	Nob Hill	110	400	326.0	325.2	1.000	110	400	$325.50
29	San Francisco	Nob Hill	110	400	465.8	468.0	1.005	111	402	$327.07
30	San Francisco	Civic Center	70	95	181.6	309.7	1.705	119	162	$353.25
31	San Francisco	Polk Gulch	70	95	200.3	330.4	1.649	115	157	$341.67
32	San Francisco	Polk Gulch	70	95	291.4	320.5	1.100	77	104	$227.81
33	San Francisco	Polk Gulch	70	75	177.3	196.2	1.106	77	83	$229.17
34	San Francisco	Polk Gulch	60	75	240.8	348.0	1.445	87	108	$256.64
35	San Francisco	Russian Hill	80	80	359.5	327.5	1.000	80	80	$236.73
36	San Francisco	North Beach	125	175	429.1	564.0	1.314	164	230	$486.12
37	San Francisco	North Beach	125	175	418.9	467.4	1.116	139	195	$412.71
38	San Francisco	North Beach	80	330	264.2	338.2	1.280	102	422	$303.04
39	San Francisco	North Beach	80	330	186.7	373.3	2.000	160	660	$473.39
40	San Francisco	Fisherman's Wharf	80	260	120.0	137.1	1.142	91	297	$270.32
41	San Francisco	Fisherman's Wharf	80	400	104.3	102.5	1.000	80	400	$236.73
44	San Francisco	Western Addition	55	75	126.0	158.3	1.257	69	94	$204.51
45	San Francisco	Western Addition	0	75	217.3	239.7	1.103	0	83	$0.00
46	San Francisco	Western Addition	55	75	306.5	305.3	1.000	55	75	$162.75
47	San Francisco	Western Addition	0	90	434.3	547.2	1.260	0	113	$0.00
48	San Francisco	Western Addition	0	90	310.0	379.7	1.225	0	110	$0.00
49	San Francisco	Western Addition	0	90	270.8	334.6	1.236	0	111	$0.00
72	San Francisco	Western Addition	0	81	130.8	170.5	1.304	0	106	$0.00

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73	San Francisco	Western Addition	50	90	175.0	221.5	1.266	63	114	$187.27
74	San Francisco	Western Addition	25	86	180.1	208.4	1.157	29	100	$85.63
75	San Francisco	Western Addition	50	90	321.3	336.3	1.047	52	94	$154.85
76	San Francisco	Western Addition	55	90	230.8	217.5	1.000	55	90	$162.75
77	San Francisco	Western Addition	55	90	53.1	59.3	1.117	61	101	$181.79
78	San Francisco	Western Addition	55	90	74.4	64.5	1.000	55	90	$162.75
79	San Francisco	Hayes Valley	70	90	213.9	243.3	1.138	80	102	$235.65
80	San Francisco	Hayes Valley	55	85	80.5	113.6	1.411	78	120	$229.61
81	San Francisco	Buena Vista	35	50	181.1	165.4	1.000	35	50	$103.57
82	San Francisco	Buena Vista	35	50	102.2	121.1	1.185	41	59	$122.68
84	San Francisco	Buena Vista	35	50	227.0	327.8	1.444	51	72	$149.54
85	San Francisco	Buena Vista	55	85	91.0	107.5	1.182	65	100	$192.33
94	San Francisco	Castro	0	45	288.2	387.2	1.343	0	60	$0.00
99	San Francisco	Mission District	0	50	178.3	250.8	1.407	0	70	$0.00
100	San Francisco	Mission District	0	50	96.2	97.0	1.009	0	50	$0.00
101	San Francisco	Mission District	0	50	176.5	178.5	1.012	0	51	$0.00
102	San Francisco	Mission District	0	50	299.0	437.0	1.462	0	73	$0.00
103	San Francisco	Mission District	0	45	158.5	236.1	1.490	0	67	$0.00
104	San Francisco	Mission District	0	45	122.8	158.9	1.295	0	58	$0.00
105	San Francisco	Mission District	35	50	169.1	201.7	1.193	42	60	$123.54
106	San Francisco	Mission District	35	50	149.2	166.6	1.117	39	56	$115.68
107	San Francisco	Mission District	35	50	124.3	127.9	1.028	36	51	$106.51
109	San Francisco	Mission District	50	100	38.3	65.8	1.721	86	172	$254.59
257	San Mateo	Downtown	0	20	113.7	145.0	1.275	0	25	$0.00
258	San Mateo	Downtown	0	20	81.3	145.6	1.791	0	36	$0.00
259	San Mateo	Downtown	0	20	20.0	21.1	1.054	0	21	$0.00
260	San Mateo	Downtown	0	20	29.7	42.5	1.433	0	29	$0.00
314	Redwood City	Downtown	0	9	42.2	50.8	1.205	0	11	$0.00
315	Redwood City	Downtown	0	9	56.8	76.2	1.343	0	12	$0.00
316	Redwood City	Downtown	0	9	41.1	93.0	2.261	0	20	$0.00
326	Redwood City	Downtown	0	9	35.4	64.5	1.819	0	16	$0.00
347	Palo Alto	Downtown	9	31	6.3	5.4	1.000	9	31	$26.63
354	Palo Alto	Downtown	17	61	36.1	39.2	1.085	18	66	$54.60
355	Palo Alto	Downtown	17	61	42.4	44.8	1.058	18	65	$53.20
356	Palo Alto	Downtown	17	61	150.5	151.9	1.010	17	62	$50.80
546	San Jose	Downtown	18	113	57.6	82.7	1.437	26	162	$76.56
549	San Jose	Downtown	43	73	47.8	79.0	1.654	71	121	$210.45
556	San Jose	Downtown	33	92	8.3	29.4	3.541	117	326	$345.75
557	San Jose	Downtown	33	92	49.5	78.0	1.578	52	145	$154.09
558	San Jose	Downtown	45	194	93.2	137.6	1.477	66	286	$196.61
560	San Jose	Downtown	29	92	156.2	419.9	2.689	78	247	$230.73
945	Oakland	Downtown	55	120	94.4	120.1	1.272	70	153	$207.09
946	Oakland	Downtown	30	75	42.8	48.5	1.133	34	85	$100.55
967	Oakland	Downtown	30	75	60.1	69.0	1.148	34	86	$101.93
968	Oakland	Downtown	55	120	144.7	163.5	1.130	62	136	$183.93
969	Oakland	Downtown	55	120	340.8	350.7	1.029	57	123	$167.49
970	Oakland	Downtown	55	120	102.2	132.6	1.297	71	156	$211.08
971	Oakland	Downtown	55	120	224.9	273.3	1.215	67	146	$197.77

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980	Oakland	Downtown	30	120	24.2	34.7	1.435	43	172	$127.37
981	Oakland	Downtown	55	120	69.1	93.4	1.351	74	162	$219.91
1007	Berkeley	Downtown	96	32	22.2	26.4	1.187	114	38	$337.29
1008	Berkeley	Downtown	96	32	86.1	94.0	1.092	105	35	$310.15
1018	Berkeley	Downtown	96	59	116.7	127.8	1.094	105	65	$310.90
1019	Berkeley	Downtown	96	26	43.3	45.2	1.046	100	27	$297.01
1020	Berkeley	Downtown	96	26	120.3	153.3	1.274	122	33	$361.89
1021	Berkeley	Downtown	50	32	67.8	72.1	1.064	53	34	$157.36
1027	Berkeley	Downtown	50	32	57.2	61.4	1.075	54	34	$158.99

Table 2
Linear Regression on Bay Area Gas Prices, 1988-2008

Model #	Time Period	Duration	Model	Year 2035 Gas Price (4/08$)
1	4/88 - 4/08	20 years	y = 0.4431 x + 158.91	$4.14
2	4/90 - 4/08	18 years	y = 0.5047 x + 166.33	$4.39
3	4/95 - 4/08	13 years	y = 0.8906 x + 159.69	$5.87
4	**4/98 - 4/08**	**10 years**	**y = 1.3237 x + 158.91**	**$7.47**
5	4/00 - 4/08	8 years	y = 1.5456 x + 176.82	$8.26
6	4/03 - 4/08	5 years	y = 2.3314 x + 206.76	$11.02

Highlighting indicates regression model selected

where:
x = months elapsed, relative to beginning of time period
y = future year gas price, in 4/2008 cents

Source data is average retail gasoline price in Bay Area, from US BLS.

Figure 1
Linear Regression on Bay Area Gas Prices
April 1998 - April 2008

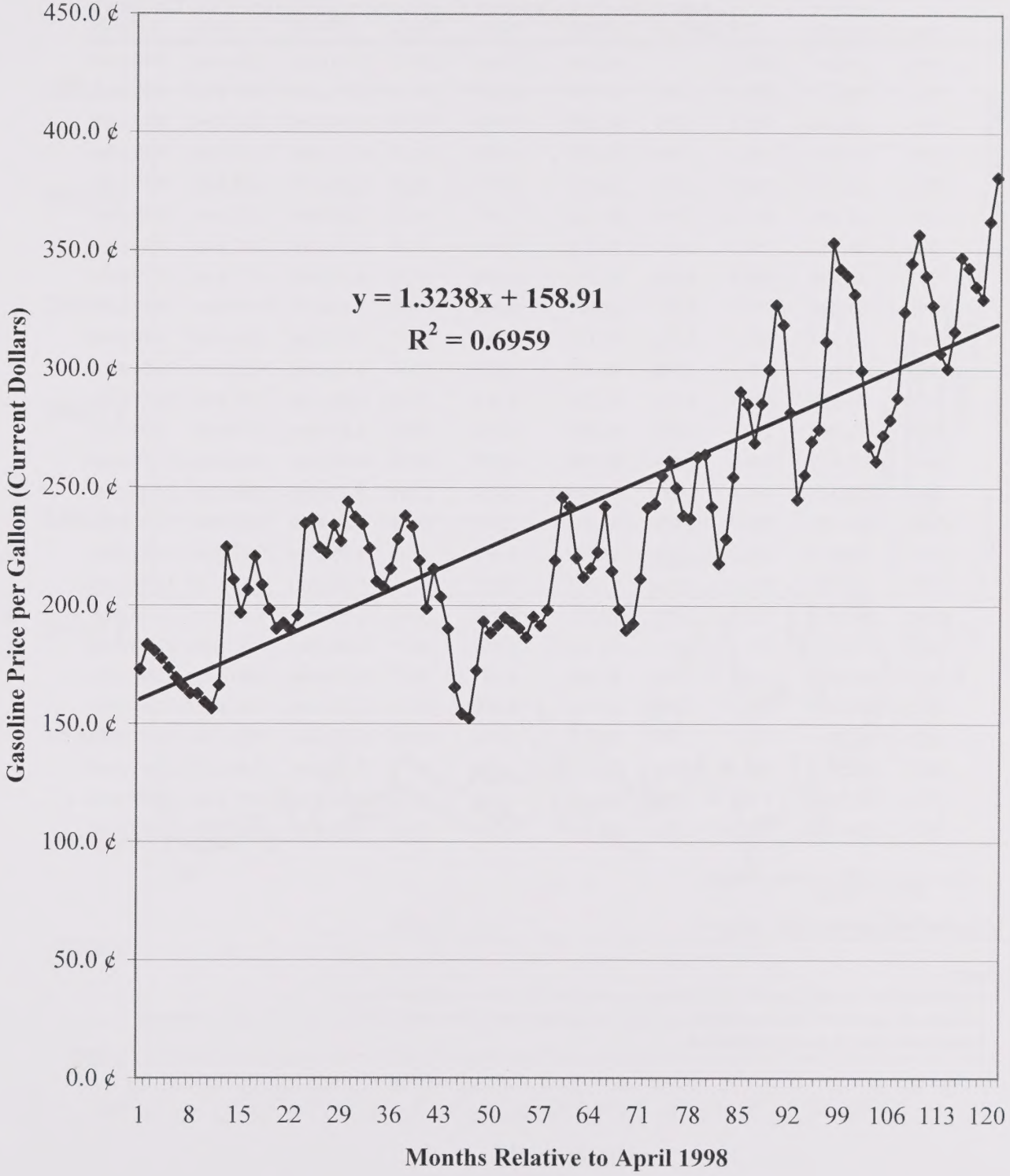


Table 3
Historical and Projected Auto Operating Costs, 1990 - 2035

Year	Retail Gas Price (Current $)	CPI	Annual Inflation	Gas Price (1990$)	Fuel Correction Factor	Fuel Economy (MPG)	Gasoline Operating Cost (¢/mi) (1990$)	Non-Gas Operating Cost (¢/mi) (1990$)	Total Auto Operating Cost (¢/mi) (1990$)
1990	$1.241	132.1		$1.241	1.000	19.11	6.49 ¢/mi	3.05 ¢/mi	9.54 ¢/mi
1991	$1.197	137.9	4.4%	$1.147	0.998	19.14	5.99 ¢/mi	3.43 ¢/mi	9.42 ¢/mi
1992	$1.302	142.5	3.3%	$1.207	0.997	19.17	6.30 ¢/mi	3.57 ¢/mi	9.87 ¢/mi
1993	$1.299	146.3	2.7%	$1.173	0.995	19.20	6.11 ¢/mi	3.70 ¢/mi	9.81 ¢/mi
1994	$1.275	148.7	1.6%	$1.133	0.994	19.23	5.89 ¢/mi	3.45 ¢/mi	9.34 ¢/mi
1995	$1.286	151.6	2.0%	$1.121	0.993	19.25	5.82 ¢/mi	3.57 ¢/mi	9.39 ¢/mi
1996	$1.434	155.1	2.3%	$1.221	0.991	19.28	6.33 ¢/mi	3.47 ¢/mi	9.80 ¢/mi
1997	$1.448	160.4	3.4%	$1.193	0.990	19.31	6.18 ¢/mi	4.12 ¢/mi	10.29 ¢/mi
1998	$1.304	165.5	3.2%	$1.041	0.988	19.34	5.38 ¢/mi	3.59 ¢/mi	8.97 ¢/mi
1999	$1.514	172.5	4.2%	$1.159	0.987	19.37	5.99 ¢/mi	3.99 ¢/mi	9.98 ¢/mi
2000	$1.832	180.2	4.5%	$1.343	0.985	19.40	6.92 ¢/mi	4.62 ¢/mi	11.54 ¢/mi
2001	$1.800	189.9	5.4%	$1.252	0.984	19.42	6.45 ¢/mi	4.30 ¢/mi	10.74 ¢/mi
2002	$1.599	193.0	1.6%	$1.094	0.983	19.45	5.63 ¢/mi	3.75 ¢/mi	9.38 ¢/mi
2003	$1.933	196.4	1.8%	$1.300	0.977	19.55	6.65 ¢/mi	4.43 ¢/mi	11.08 ¢/mi
2004	$2.165	198.8	1.2%	$1.439	0.972	19.66	7.32 ¢/mi	4.88 ¢/mi	12.20 ¢/mi
2005	$2.522	202.7	2.0%	$1.644	0.967	19.76	8.32 ¢/mi	5.55 ¢/mi	13.86 ¢/mi
2006	$2.818	209.2	3.2%	$1.779	0.962	19.86	8.96 ¢/mi	5.97 ¢/mi	14.93 ¢/mi
2007	$3.141	216.0	2.9%	$1.921	0.957	19.96	9.62 ¢/mi	6.42 ¢/mi	16.04 ¢/mi
2008	$4.250 #	222.1	2.8%	$2.528	0.952	20.07	12.60 ¢/mi	8.40 ¢/mi	21.00 ¢/mi
2009	$4.400 #	228.7	2.9%	$2.541	0.948	20.17	12.60 ¢/mi	8.40 ¢/mi	21.00 ¢/mi
2010	$4.500 #	235.3	2.9%	$2.676	0.943	20.27	13.20 ¢/mi	8.80 ¢/mi	22.01 ¢/mi
2015	$5.000 #	271.5	2.9%	$2.974	0.860	22.22	13.38 ¢/mi	8.92 ¢/mi	22.31 ¢/mi
2020	$5.500 #	313.2	2.9%	$3.271	0.762	25.08	13.04 ¢/mi	8.70 ¢/mi	21.74 ¢/mi
2025	$6.250 #	361.4	2.9%	$3.717	0.674	28.34	13.12 ¢/mi	8.74 ¢/mi	21.86 ¢/mi
2030	$6.750 #	416.9	2.9%	$4.015	0.636	30.05	13.36 ¢/mi	8.91 ¢/mi	22.27 ¢/mi
2035	$7.470 #	480.9	2.9%	$4.443	0.594	32.15	13.82 ¢/mi	9.21 ¢/mi	23.03 ¢/mi

 # - Costs are in 2008 current dolllars

Inflation Assumption (2008 - 2035) = *2.90%*

Notes:

1. Future non-gasoline operating cost based on assumption that it is 60% of auto gasoline cost.
2. Inflation assumption is based on compounded Bay Area inflation rate, 1990-2007 (216.0/132.1 ^ (1/17)) = 2.9%/year.
3. Future year estimates prepared 5/30/2008

Figure 2
Monthly Change in Bay Area Gas Prices
December 1985 - September 2008
[Bureau of Labor Statistics price data]

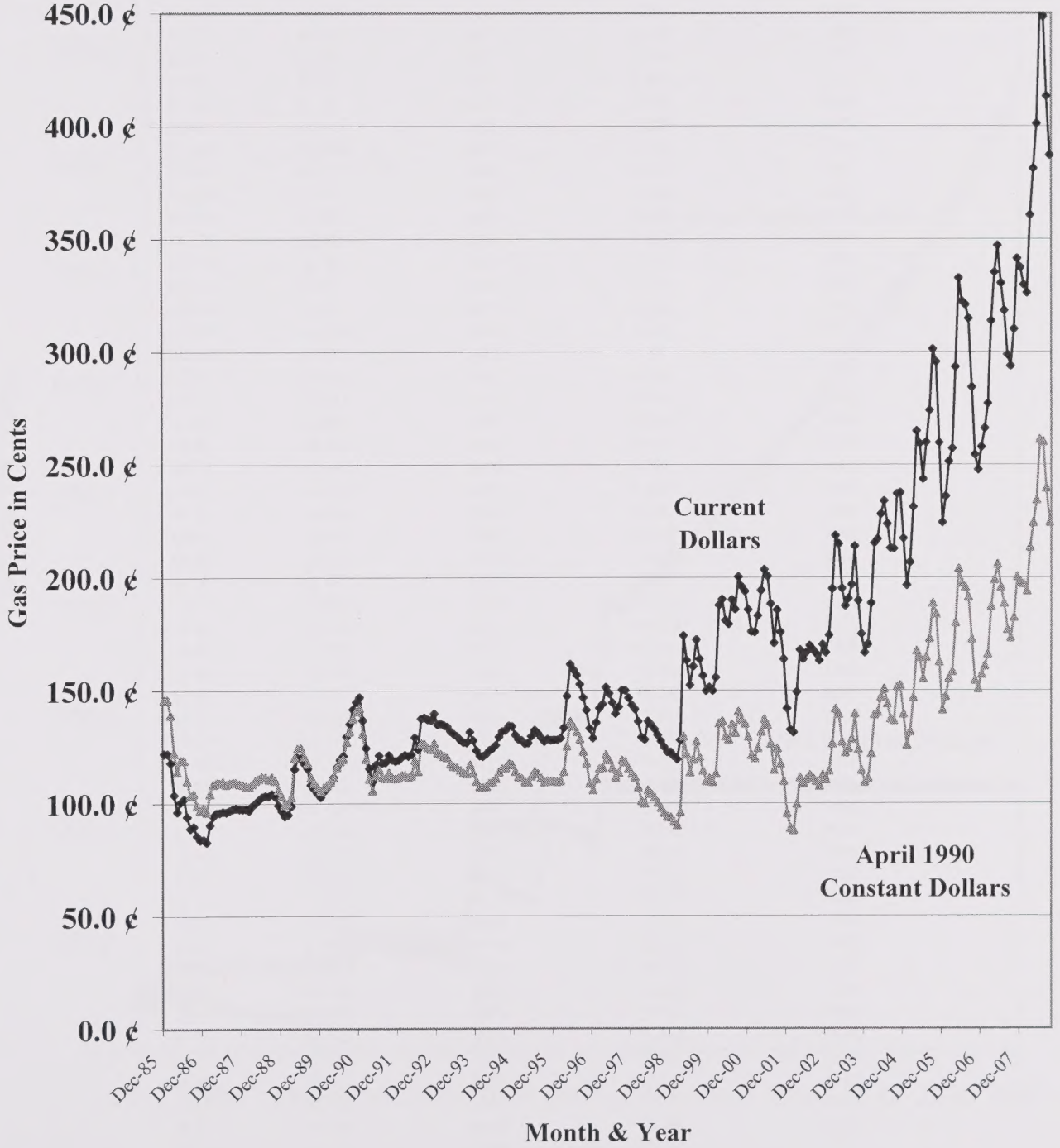


Table 4
Impact of Inflation on Bay Bridge Tolls, 1975 - 2035

Year	CPI-U All Items	San Francisco/Oakland Bay Bridge Toll (current $)	(1990 $)	(2008 $)
1975	159.1	50¢	41.5¢	109.7¢
1976	168.0	50¢	39.3¢	103.9¢
1977	180.8	75¢	54.8¢	96.5¢
1978	197.8	75¢	50.1¢	88.2¢
1979	214.6	75¢	46.2¢	81.3¢
1980	247.3	75¢	40.1¢	70.6¢
1981	279.0	75¢	35.5¢	62.5¢
1982	300.0	75¢	33.0¢	58.2¢
1983	302.5	75¢	32.8¢	57.7¢
1984	319.8	75¢	31.0¢	54.6¢
1985	333.1	75¢	29.7¢	52.4¢
1986	343.2	75¢	28.9¢	50.8¢
1987	354.7	75¢	27.9¢	49.2¢
1988	370.4	75¢	26.7¢	47.1¢
1989	388.5	100¢	34.0¢	44.9¢
1990	132.1	100¢	100.0¢	132.1¢
1991	137.9	100¢	95.8¢	126.5¢
1992	142.5	100¢	92.7¢	122.5¢
1993	146.3	100¢	90.3¢	119.3¢
1994	148.7	100¢	88.8¢	117.4¢
1995	151.6	100¢	87.1¢	115.1¢
1996	155.1	100¢	85.2¢	112.5¢
1997	160.4	100¢	82.4¢	108.8¢
1998	165.5	200¢	159.6¢	105.4¢
1999	172.5	200¢	153.2¢	101.2¢
2000	180.2	200¢	146.6¢	96.8¢
2001	189.9	200¢	139.1¢	91.9¢
2002	193.0	200¢	136.9¢	90.4¢
2003	196.4	300¢	201.8¢	88.9¢
2004	198.8	300¢	199.3¢	87.8¢
2005	202.7	300¢	195.5¢	86.1¢
2006	209.2	300¢	189.4¢	83.4¢
2007	216.0	400¢	244.6¢	80.8¢
2008	222.3*	400¢	237.7¢	78.5¢
2009	228.7*	412¢	237.7¢	76.3¢
2010	235.3*	424¢	237.7¢	74.1¢
2011	242.2*	436¢	237.7¢	72.1¢
2012	249.2*	448¢	237.7¢	70.0¢
2013	256.4*	461¢	237.7¢	68.1¢
2014	263.9*	475¢	237.7¢	66.1¢
2015	271.5*	489¢	237.7¢	64.3¢
2016	279.4*	503¢	237.7¢	62.5¢
2017	287.5*	517¢	237.7¢	60.7¢
2018	295.8*	532¢	237.7¢	59.0¢
2019	304.4*	548¢	237.7¢	57.3¢
2020	313.2*	564¢	237.7¢	55.7¢
2021	322.3*	580¢	237.7¢	54.1¢
2022	331.7*	597¢	237.7¢	52.6¢
2023	341.3*	614¢	237.7¢	51.1¢
2024	351.2*	632¢	237.7¢	49.7¢
2025	361.4*	650¢	237.7¢	48.3¢
2026	371.8*	669¢	237.7¢	46.9¢
2027	382.6*	689¢	237.7¢	45.6¢
2028	393.7*	709¢	237.7¢	44.3¢
2029	405.1*	729¢	237.7¢	43.1¢
2030	416.9*	750¢	237.7¢	41.9¢
2031	429.0*	772¢	237.7¢	40.7¢
2032	441.4*	794¢	237.7¢	39.5¢
2033	454.2*	817¢	237.7¢	38.4¢
2034	467.4*	841¢	237.7¢	37.3¢
2035	480.9*	866¢	237.7¢	36.3¢

* Assumes 2.9% per year annual inflation

Figure 3
Bay Bridge Tolls
1990 and Current Dollars

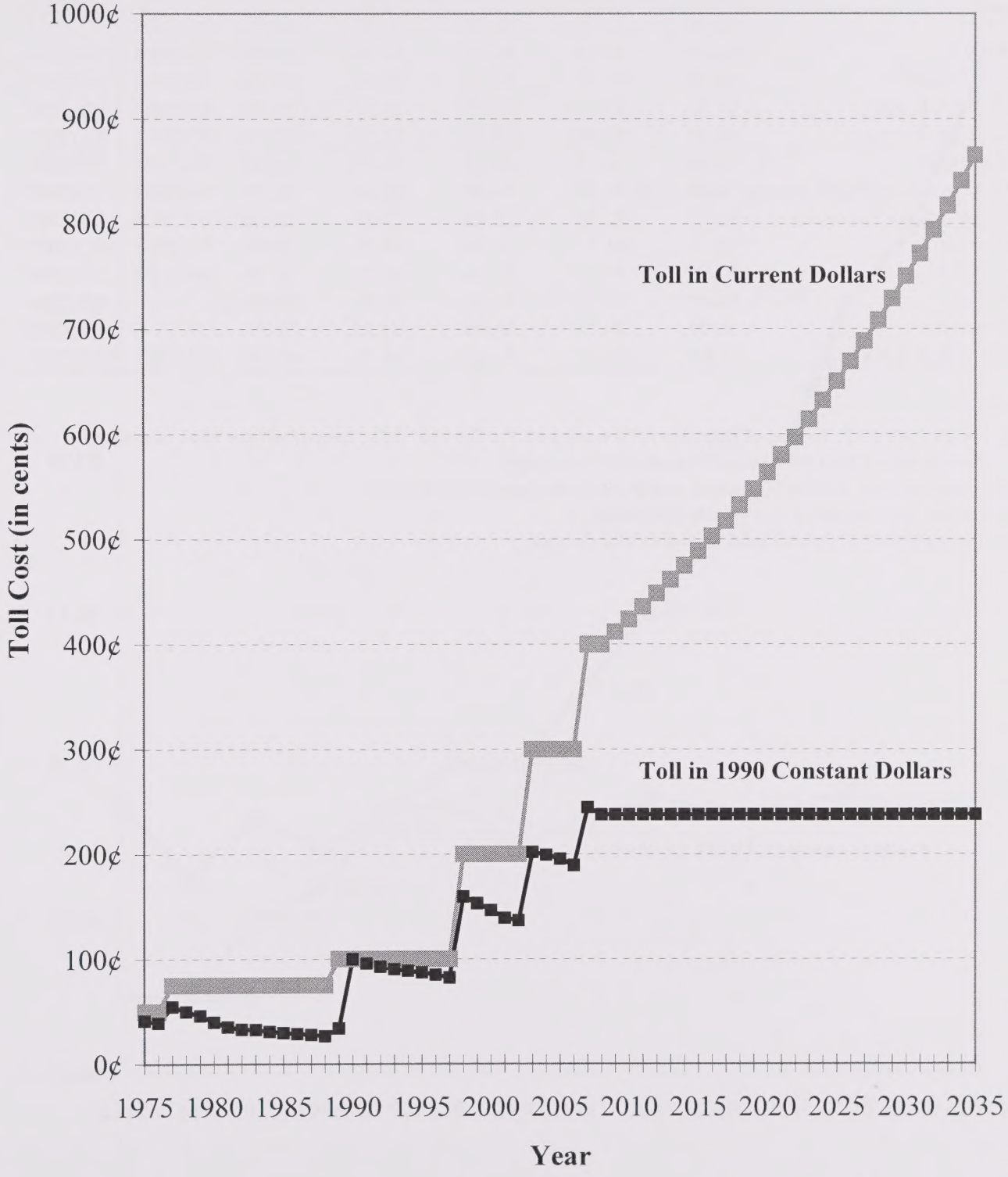


Table 5
Changes in Transit Operator Base Fares, 1998 to 2008

Operator	1998 Fare	2001 Fare	2004 Fare	2008 Fare	Percent Change, 2004-2008	Date of Previous Change	Date of Recent Change
Muni	$1.00	$1.00	$1.25	$1.50	20.0%	9/1/2003	9/1/2005
BART	$1.10	$1.10	$1.25	$1.50	20.0%	1/1/2004	1/1/2008
AC Transit	$1.25	$1.35	$1.50	$1.75	16.7%	9/1/2003	9/6/2005
SCVTA-Local	$1.10	$1.25	$1.50	$1.75	16.7%	8/1/2003	9/1/2007
SCVTA-Express	$1.75	$2.00	$3.00	$3.50	16.7%	8/1/2003	9/1/2007
SamTrans	$1.00	$1.10	$1.25	$1.50	20.0%	9/1/2003	9/1/2005
Golden Gate (Marin)	$1.25	$1.50	$1.80	$2.00	11.1%	7/1/2003	7/1/2007
Golden Gate (Sonoma)	$1.75	$2.15	$2.45	$3.15	28.6%	7/1/2003	7/1/2007
Caltrain	$1.11	$1.11	$1.50	$1.92	28.0%	7/1/2002	4/2/2007
CCCTA	$1.00	$1.25	$1.50	$1.75	16.7%	9/8/2002	2/1/2006
Vallejo	$1.00	$1.25	$1.35	$1.75	29.6%	--	9/1/2006
Tri-Delta	$0.75	$0.75	$1.00	$1.25	25.0%	--	1/1/2007
WHEELS (LAVTA)	$1.00	$1.00	$1.25	$1.75	40.0%	8/1/2003	8/25/2007

Notes:
1. For the 1998 RTP, fares as of February 1998 were used. For the 2001 RTP, fares as of May 2001 were used. For the 2005 RTP/TIP, fares as of March 2004 were used.
2. Transit fares are from MTC records, and the Web site: http://www.511.org/
3. Caltrain fares are based on a 10-ride ticket book.
4. For the 2009 RTP, transit fares as of 6/1/2008 are used.

Figure 4.1
San Francisco Municipal Railway (Muni)
Base Fare: Historical and Projected

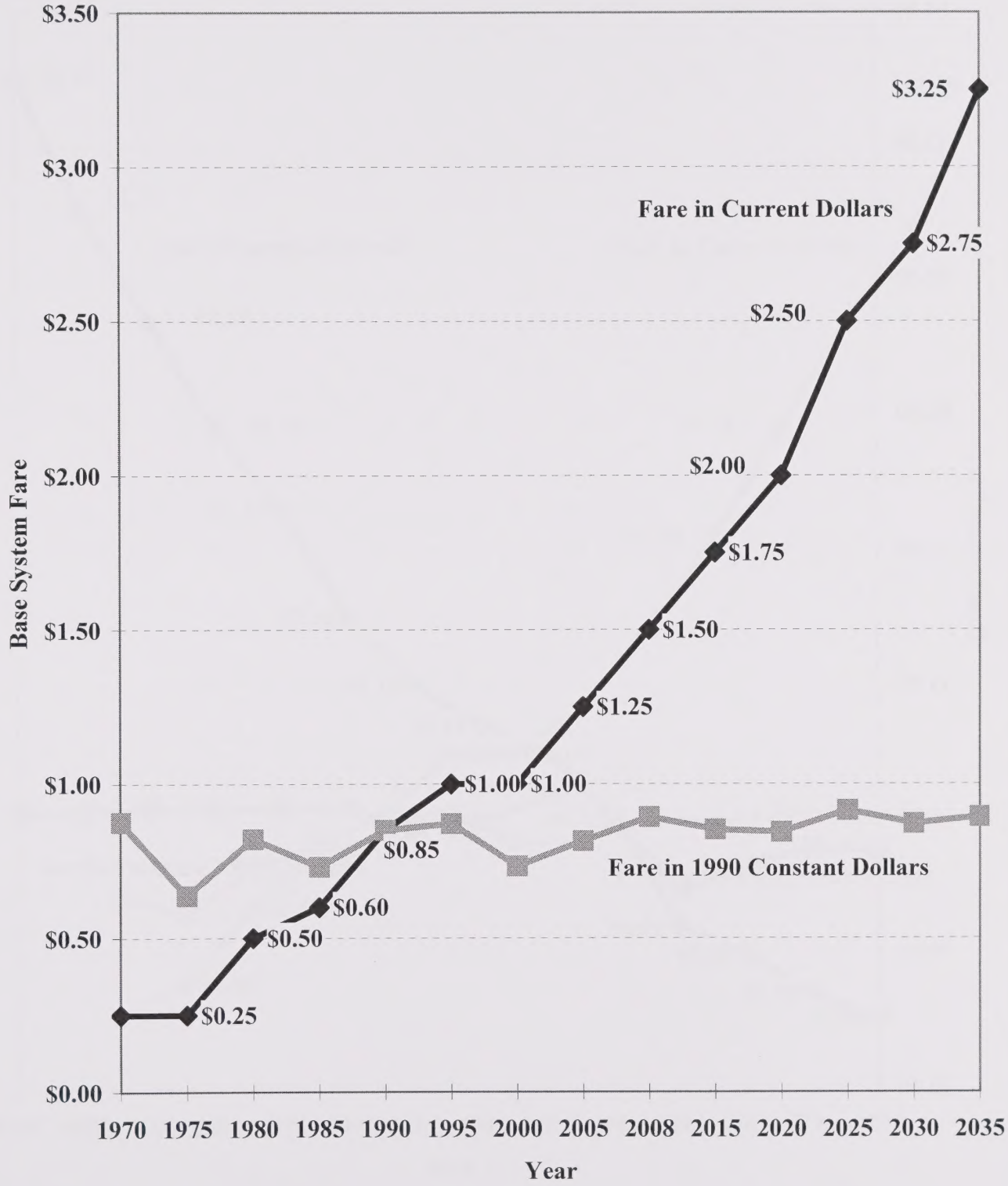


Figure 4.2
A.C. Transit District
Base Fare: Historical and Projected

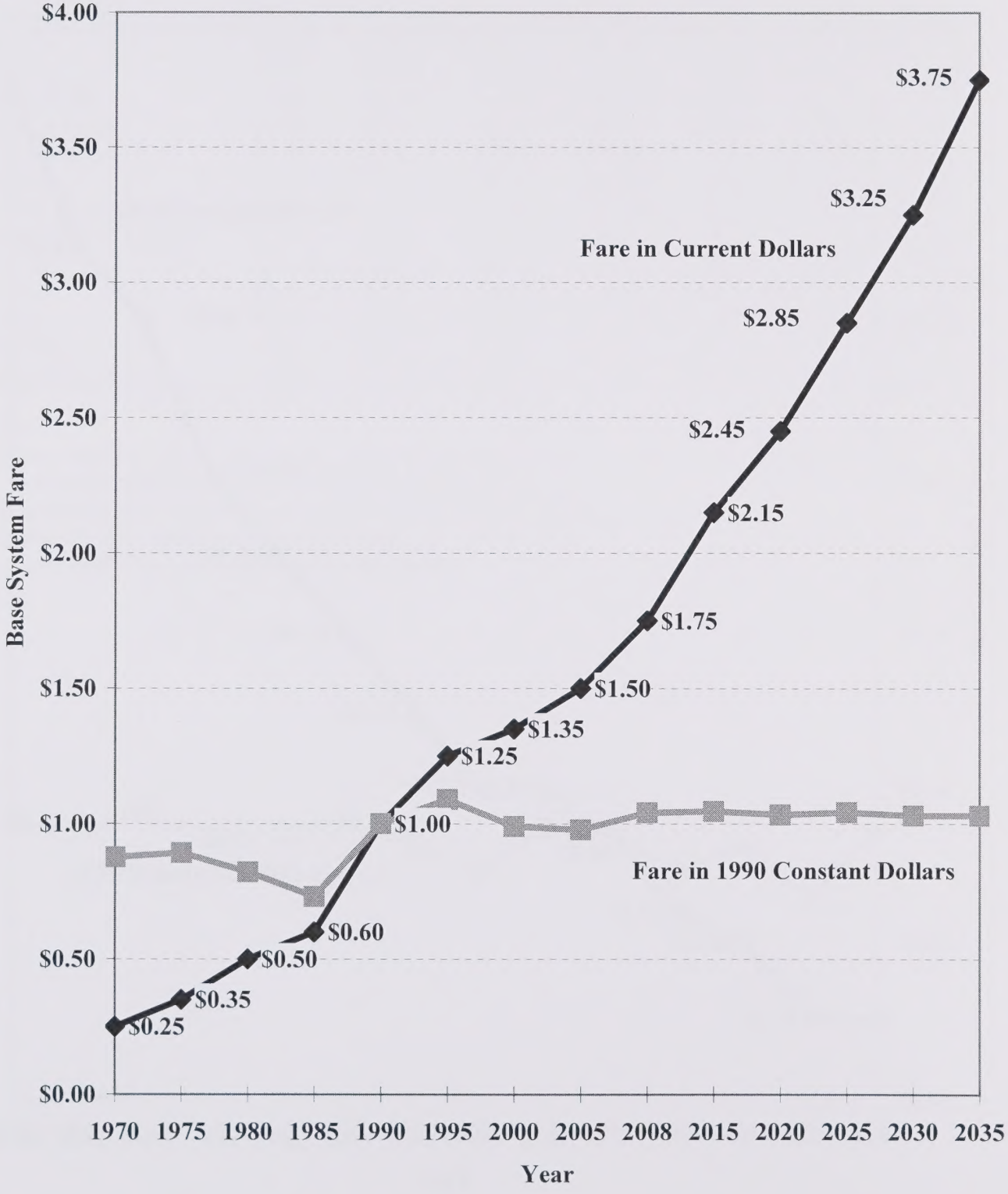


Figure 4.3
Bay Area Rapid Transit District (BART)
Base Fare: Historical and Projected

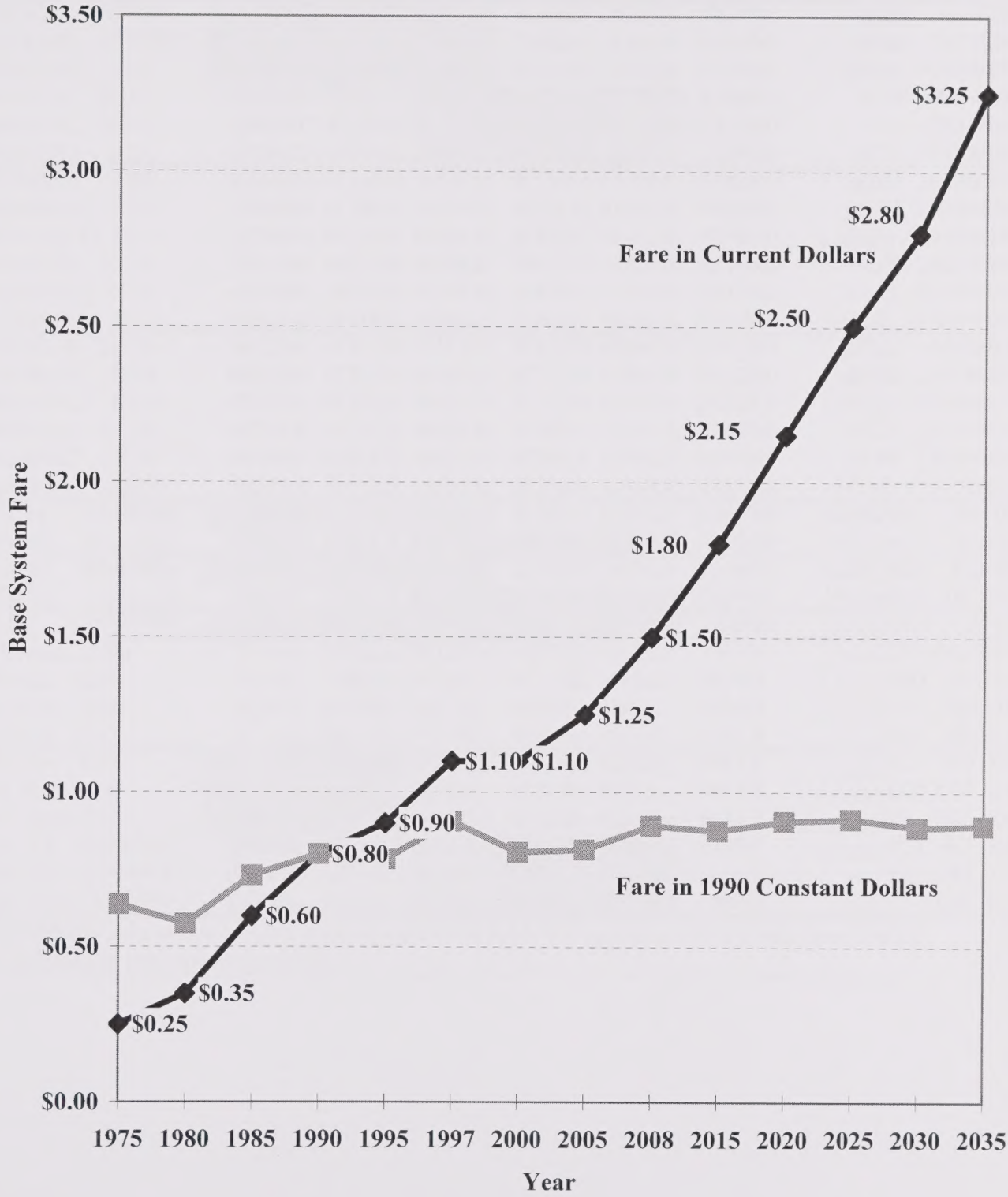


Table 6
Time-of-Day Factors for MTC Five Time Period Daily Traffic Assignment: Base Years

Purpose/Direction	Early AM	AM Peak	Midday	PM Peak	Evening	Sum	Check if 1.0
HBWDA, H2W	0.05708	0.36982	0.06153	0.01857	0.00685	0.51385	1.00001
HBWSR2, H2W	0.04165	0.56583	0.02951	0.01241	0.00589	0.65529	0.99999
HBWSR3+, H2W	0.03639	0.65194	0.03211	0.01630	0.00121	0.73795	1
HBWDA, W2H	0.00817	0.00740	0.06024	0.33163	0.07872	0.48616	
HBWSR2, W2H	0.00143	0.00351	0.03442	0.27025	0.03509	0.34470	
HBWSR3+, W2H	0.00510	0.00325	0.03444	0.20212	0.01714	0.26205	
HBSHDA, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1
HBSHSR2, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1
HBSHSR3+, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1
HBSHDA, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSHSR2, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSHSR3+, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSRDA, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1
HBSRSR2, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1
HBSRSR3+, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1
HBSRDA, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBSRSR2, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBSRSR3+, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBHS, H2School	0.00167	0.34262	0.09338	0.10455	0.01399	0.55621	1.00001
HBHS, School2H	0.00037	0.02147	0.13995	0.14218	0.13983	0.44380	
HBCol, H2College	0.00167	0.34262	0.09338	0.10455	0.01399	0.55621	1.00001
HBCol, College2H	0.00037	0.02147	0.13995	0.14218	0.13983	0.44380	
NHB, O2D	0.00967	0.09322	0.46515	0.34715	0.08480	0.99999	0.99999
VSTruck, O2D	0.0765	0.2440	0.3710	0.2180	0.0905	1	1
STruck, O2D	0.0765	0.2440	0.3710	0.2180	0.0905	1	1
MTruck, O2D	0.0665	0.2930	0.3935	0.1730	0.0740	1	1
LTruck, O2D	0.1430	0.2320	0.3315	0.1750	0.1185	1	1
I/X, DA X2I	0.1340	0.2837	0.2572	0.2149	0.1102	1	1
I/X, SR2 X2I	0.1340	0.2837	0.2572	0.2149	0.1102	1	1
I/X, SR3+ X2I	0.1340	0.2837	0.2572	0.2149	0.1102	1	1
I/X, DA I2X	0.0644	0.1754	0.2695	0.3200	0.1706	0.9999	0.9999
I/X, SR2 I2X	0.0644	0.1754	0.2695	0.3200	0.1706	0.9999	0.9999
I/X, SR3+ I2X	0.0644	0.1754	0.2695	0.3200	0.1706	0.9999	0.9999

Table 7
Time-of-Day Factors for MTC Five Time Period Daily Traffic Assignment: Forecast Years
Model #1 (6.8% reduction for AM and PM Peak Period HBW, HBSchool, I/X trips)

Purpose/Direction	Early AM	AM Peak	Midday	PM Peak	Evening	Sum	Check if 1.0
HBWDA, H2W	0.06875	0.34467	0.07500	0.01857	0.00685	0.51384	1.00000
HBWSR2, H2W	0.06500	0.52735	0.04465	0.01241	0.00589	0.65530	1.00000
HBWSR3+, H2W	0.05883	0.60761	0.05400	0.01630	0.00121	0.73795	1.00000
HBWDA, W2H	0.00817	0.00740	0.07500	0.30908	0.08651	0.48616	
HBWSR2, W2H	0.00143	0.00351	0.04500	0.25187	0.04288	0.34469	
HBWSR3+, W2H	0.00510	0.00325	0.04500	0.18838	0.02033	0.26206	
HBSHDA, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1.00000
HBSHSR2, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1.00000
HBSHSR3+, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1.00000
HBSHDA, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSHSR2, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSHSR3+, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSRDA, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1.00000
HBSRSR2, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1.00000
HBSRSR3+, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1.00000
HBSRDA, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBSRSR2, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBSRSR3+, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBHS, H2School	0.01000	0.31932	0.10835	0.10455	0.01399	0.55621	1.00000
HBHS, School2H	0.00037	0.02147	0.14100	0.13251	0.14844	0.44379	
HBCol, H2College	0.01000	0.31932	0.10835	0.10455	0.01399	0.55621	1.00000
HBCol, College2H	0.00037	0.02147	0.14100	0.13251	0.14844	0.44379	
NHB, O2D	0.02000	0.08688	0.46958	0.32354	0.10000	1.00000	1.00000
VSTruck, O2D	0.0765	0.2440	0.3710	0.2180	0.0905	1	1.00000
STruck, O2D	0.0765	0.2440	0.3710	0.2180	0.0905	1	1.00000
MTruck, O2D	0.0665	0.2930	0.3935	0.1730	0.0740	1	1.00000
LTruck, O2D	0.1430	0.2320	0.3315	0.1750	0.1185	1	1.00000
I/X, DA X2I	0.15329	0.26441	0.25720	0.21490	0.11020	1	1.00000
I/X, SR2 X2I	0.15329	0.26441	0.25720	0.21490	0.11020	1	1.00000
I/X, SR3+ X2I	0.15329	0.26441	0.25720	0.21490	0.11020	1	1.00000
I/X, DA I2X	0.06440	0.17540	0.26950	0.29824	0.19246	1	1.00000
I/X, SR2 I2X	0.06440	0.17540	0.26950	0.29824	0.19246	1	1.00000
I/X, SR3+ I2X	0.06440	0.17540	0.26950	0.29824	0.19246	1	1.00000

Highlighting indicates factors that were adjusted from Table 6 to counteract the trip reduction created in applying the peak spreading model

Table 8
Speed/Capacity Table (With Revised Speeds)
San Francisco Bay Area Regional Highway Networks

Area Type	Facility Type								Speed Class*	
	Frwy-to-Frwy (1)	Freeway (2)	Expwy (3)	Collector (4)	Fwy Ramp (5)	Dummy (6)	Major Arterial (7)	Metered Ramp (8)	Special (9)	Special (10)
Core (0)	1,700 40	1,850 55	1,300 40 (25)	550 10 (5)	1,300 30 (25)	N.A.	800 20 (15)	700 25 (20)	1,900 (A) 55	1,350 (G) 40 (25)
CBD (1)	1,700 40	1,850 55	1,300 40 (25)	600 15 (10)	1,300 30 (25)	N.A.	850 25 (20)	700 25 (20)	1,950 (B) 60	1,500 (H) 45 (30)
UBD (2)	1,750 45	1,900 60	1,450 45 (30)	650 20 (15)	1,400 35 (30)	N.A.	900 30 (25)	800 30 (25)	2,000 (C) 65	1,530 (I) 55 (40)
Urban (3)	1,750 45	1,900 60	1,450 45 (30)	650 25 (20)	1,400 35 (30)	N.A.	900 30 (25)	800 30 (25)	1,780 (D) 50	900 (J) 25 (20)
Suburb.(4)	1,800 50	1,950 65	1,500 50 (35)	800 30 (25)	1,400 40 (35)	N.A.	950 35 (30)	900 35 (30)	1,800 (E) 45	950 (K) 30 (25)
Rural (5)	1,800 50	1,950 65	1,500 55 (40)	850 35 (30)	1,400 40 (35)	N.A.	950 40 (35)	900 35 (30)	1,840 (F) 50	980 (L) 40 (35)

Upper Entry: Capacity at Level of Service "E" in vehicles per hour per lane, i.e., ultimate capacity

Lower Entry: Free-Flow Speed (miles per hour)

* Speed Class = (Area Type * 10) + Facility Type

N.A. = Not Applicable

Notes:

(A) TOS Fwy (AT=0,1); (B) TOS Fwy (AT=2,3); (C) TOS Fwy (AT=4,5); (D) Golden Gate; (E) TOS Fwy-to-Fwy (AT=0-3); (F) TOS Fwy-to-Fwy (AT=4,5)

(G) Expwy TOS (AT=0,1); (H) Expwy TOS (AT=2,3); (I) Expwy TOS (AT=4,5); (J) Art.Sig.Coor. (AT=0,1); (K) Art.Sig.Coor. (AT=2,3); (L) Art.Sig.Coor. (AT=4,5)

Speed values in parentheses are used in MTC speed post-processing routine, now considered the "main processing" routine.

Table 9
Distribution of Average Weekday Daily Vehicle Miles of Travel (VMT) by Average Link Speed by 13 Speed Cohorts used in ARB BURDEN Models
Regional Transportation Plan 2009: Year 2006, 2015, 2035 Project Alternative

		2006 Base Year		2015 Intermediate Year		2035 Project Forecast	
	Speed Cohort	VMT	% of Total	VMT	% of Total	VMT	% of Total
1	< 7.5 mph	184,664	0.1%	192,532	0.1%	432,222	0.2%
2	7.5 - 12.5 mph	854,411	0.6%	921,902	0.6%	2,306,461	1.2%
3	12.5 - 17.5 mph	8,308,526	5.7%	8,932,304	5.6%	12,395,575	6.5%
4	17.5 - 22.5 mph	8,526,695	5.9%	9,252,164	5.8%	13,335,551	7.0%
5	22.5 - 27.5 mph	19,384,988	13.4%	19,492,850	12.3%	26,858,972	14.0%
6	27.5 - 32.5 mph	17,368,214	12.0%	15,656,376	9.9%	22,141,457	11.6%
7	32.5 - 37.5 mph	12,642,898	8.7%	15,211,882	9.6%	19,975,780	10.4%
8	37.5 - 42.5 mph	6,746,320	4.7%	6,030,747	3.8%	10,443,812	5.5%
9	42.5 - 47.5 mph	7,987,046	5.5%	7,930,087	5.0%	10,160,722	5.3%
10	47.5 - 52.5 mph	8,796,832	6.1%	9,001,994	5.7%	13,167,763	6.9%
11	52.5 - 57.5 mph	12,265,285	8.5%	14,676,154	9.3%	12,858,938	6.7%
12	57.5 - 62.5 mph	20,391,028	14.1%	24,160,096	15.3%	23,572,322	12.3%
13	> 62.5 mph	21,528,171	14.8%	26,914,446	17.0%	23,805,972	12.4%
	TOTAL	144,985,077	100.0%	158,373,533	100.0%	191,455,547	100.0%

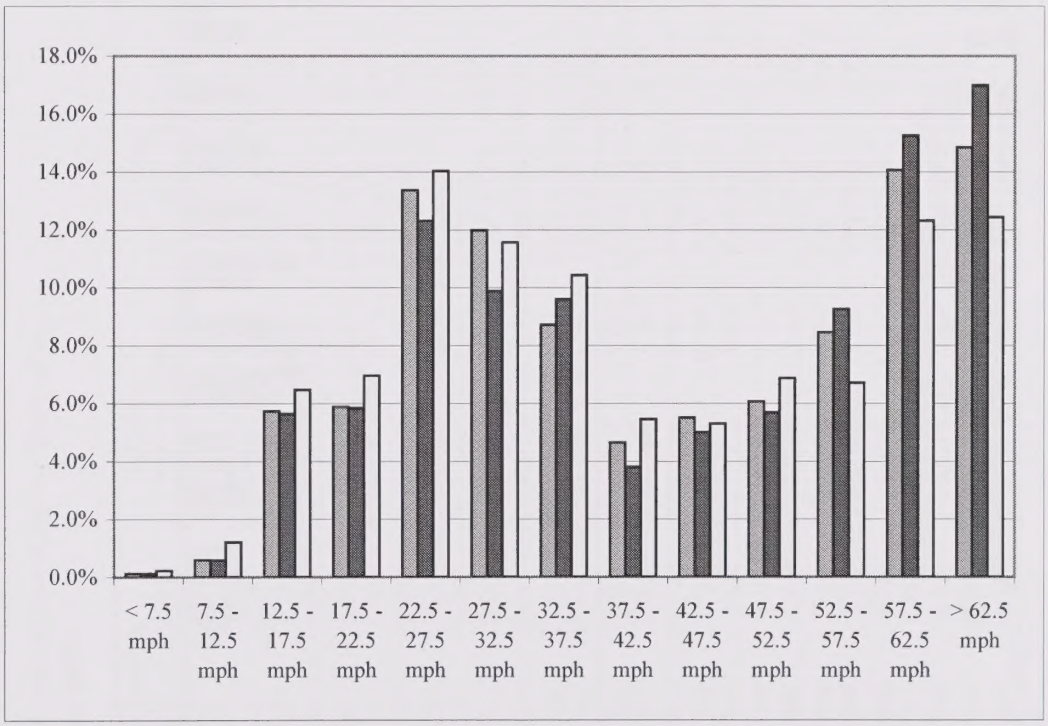


Table 10
Year 2006 Vehicle Miles of Travel by Speed Bin by Time of Day
Regional Transportation Plan 2009

		Early Morning		AM Peak		Midday		PM Peak		Evening		Daily	
	Speed Cohort	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total
1	< 7.5 mph	5,312	0.1%	48,713	0.1%	44,231	0.1%	74,551	0.2%	11,857	0.1%	184,664	0.1%
2	7.5 - 12.5 mph	25,074	0.4%	202,520	0.5%	240,146	0.6%	323,986	0.7%	62,686	0.4%	854,411	0.6%
3	12.5 - 17.5 mph	302,369	4.2%	2,149,714	5.6%	2,429,668	6.2%	2,559,220	5.9%	867,555	5.2%	8,308,526	5.7%
4	17.5 - 22.5 mph	258,211	3.6%	2,491,060	6.5%	2,126,559	5.4%	2,953,568	6.8%	697,296	4.2%	8,526,695	5.9%
5	22.5 - 27.5 mph	608,888	8.5%	5,243,080	13.7%	5,030,613	12.8%	6,700,751	15.4%	1,801,655	10.7%	19,384,988	13.4%
6	27.5 - 32.5 mph	545,490	7.7%	4,993,303	13.0%	3,852,079	9.8%	6,453,457	14.8%	1,523,884	9.1%	17,368,214	12.0%
7	32.5 - 37.5 mph	603,908	8.5%	3,513,201	9.2%	2,537,521	6.5%	4,776,508	11.0%	1,211,760	7.2%	12,642,898	8.7%
8	37.5 - 42.5 mph	56,085	0.8%	2,722,234	7.1%	783,205	2.0%	3,072,322	7.1%	112,473	0.7%	6,746,320	4.7%
9	42.5 - 47.5 mph	83,088	1.2%	2,778,707	7.3%	1,542,030	3.9%	3,377,117	7.8%	206,103	1.2%	7,987,046	5.5%
10	47.5 - 52.5 mph	27,160	0.4%	2,593,527	6.8%	2,359,916	6.0%	3,759,018	8.6%	57,212	0.3%	8,796,832	6.1%
11	52.5 - 57.5 mph	38,374	0.5%	4,077,352	10.6%	4,581,771	11.7%	3,430,352	7.9%	137,436	0.8%	12,265,285	8.5%
12	57.5 - 62.5 mph	1,925,720	27.0%	4,007,105	10.5%	6,497,099	16.5%	3,365,737	7.7%	4,595,367	27.4%	20,391,028	14.1%
13	> 62.5 mph	2,643,997	37.1%	3,493,495	9.1%	7,294,916	18.6%	2,615,736	6.0%	5,480,026	32.7%	21,528,171	14.8%
	TOTAL	7,123,675	100.0%	38,314,014	100.0%	39,319,755	100.0%	43,462,324	100.0%	16,765,309	100.0%	144,985,077	100.0%

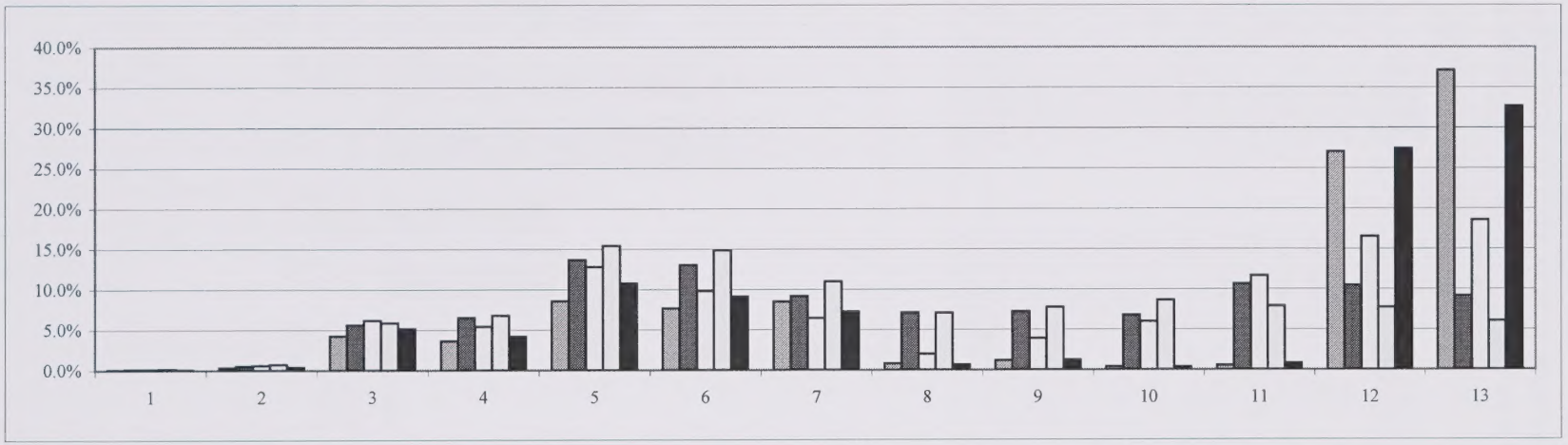


Table 11
Year 2015 Vehicle Miles of Travel by Speed Bin by Time of Day
Regional Transportation Plan 2009

		Early Morning		AM Peak		Midday		PM Peak		Evening		Daily	
	Speed Cohort	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total
1	< 7.5 mph	6,282	0.1%	44,599	0.1%	52,196	0.1%	76,469	0.2%	12,986	0.1%	192,532	0.1%
2	7.5 - 12.5 mph	30,142	0.3%	240,449	0.6%	262,835	0.6%	315,731	0.7%	72,745	0.4%	921,902	0.6%
3	12.5 - 17.5 mph	383,110	4.2%	2,236,041	5.6%	2,755,008	6.2%	2,574,125	5.7%	984,020	5.1%	8,932,304	5.6%
4	17.5 - 22.5 mph	320,622	3.5%	2,708,003	6.7%	2,500,955	5.6%	2,937,976	6.5%	784,608	4.1%	9,252,164	5.8%
5	22.5 - 27.5 mph	768,804	8.5%	4,965,143	12.3%	5,467,424	12.3%	6,278,775	13.8%	2,012,704	10.5%	19,492,850	12.3%
6	27.5 - 32.5 mph	652,462	7.2%	4,281,174	10.6%	3,788,562	8.5%	5,352,144	11.8%	1,582,035	8.2%	15,656,376	9.9%
7	32.5 - 37.5 mph	835,859	9.2%	4,006,857	9.9%	3,620,817	8.2%	5,137,779	11.3%	1,610,570	8.4%	15,211,882	9.6%
8	37.5 - 42.5 mph	54,474	0.6%	2,215,668	5.5%	864,194	1.9%	2,800,481	6.2%	95,930	0.5%	6,030,747	3.8%
9	42.5 - 47.5 mph	108,197	1.2%	2,708,226	6.7%	1,565,398	3.5%	3,311,515	7.3%	236,751	1.2%	7,930,087	5.0%
10	47.5 - 52.5 mph	34,387	0.4%	2,825,684	7.0%	2,479,577	5.6%	3,597,859	7.9%	64,487	0.3%	9,001,994	5.7%
11	52.5 - 57.5 mph	48,766	0.5%	4,482,403	11.1%	5,341,643	12.1%	4,641,298	10.2%	162,044	0.8%	14,676,154	9.3%
12	57.5 - 62.5 mph	2,461,859	27.1%	5,029,310	12.5%	6,988,972	15.8%	4,481,822	9.9%	5,198,133	27.0%	24,160,096	15.3%
13	> 62.5 mph	3,384,783	37.2%	4,539,147	11.3%	8,638,419	19.5%	3,947,171	8.7%	6,404,926	33.3%	26,914,446	17.0%
	TOTAL	9,089,746	100.0%	40,282,705	100.0%	44,326,000	100.0%	45,453,144	100.0%	19,221,938	100.0%	158,373,533	100.0%

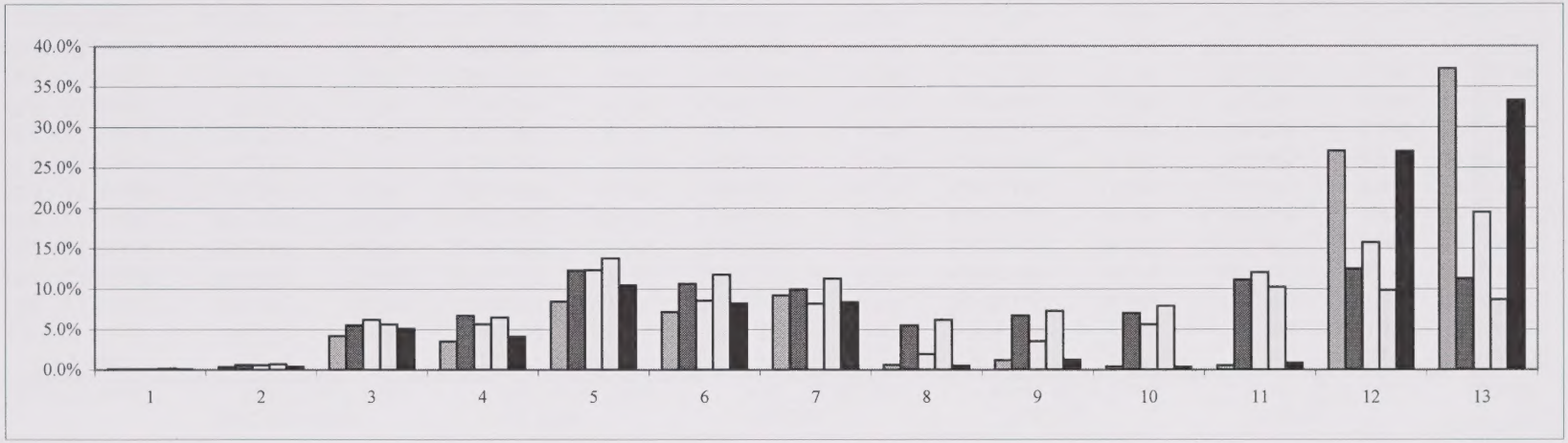
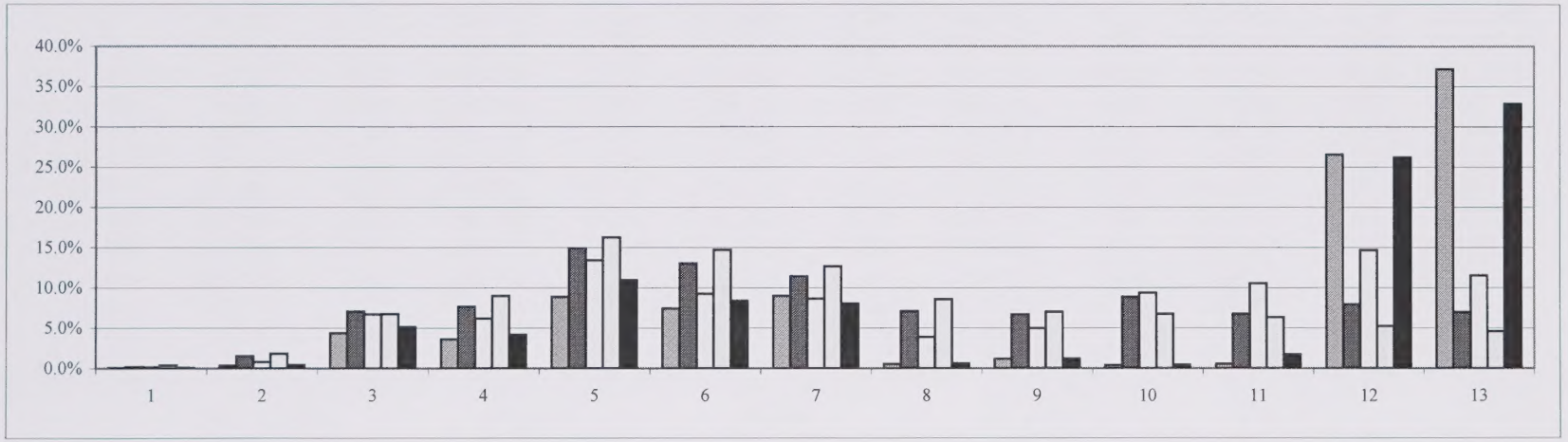


Table 12
Year 2035 Project Alternative, Vehicle Miles of Travel by Speed Bin by Time of Day
Regional Transportation Plan 2009

		Early Morning		AM Peak		Midday		PM Peak		Evening		Daily	
	Speed Cohort	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total
1	< 7.5 mph	7,772	0.1%	110,837	0.2%	78,271	0.1%	219,580	0.4%	15,762	0.1%	432,222	0.2%
2	7.5 - 12.5 mph	38,271	0.3%	744,402	1.5%	423,599	0.8%	1,004,088	1.8%	96,101	0.4%	2,306,461	1.2%
3	12.5 - 17.5 mph	487,081	4.4%	3,450,255	7.0%	3,574,094	6.7%	3,708,119	6.8%	1,176,025	5.1%	12,395,575	6.5%
4	17.5 - 22.5 mph	404,954	3.6%	3,744,152	7.6%	3,298,725	6.2%	4,929,749	9.0%	957,971	4.2%	13,335,551	7.0%
5	22.5 - 27.5 mph	992,344	8.9%	7,291,738	14.9%	7,147,433	13.4%	8,907,960	16.2%	2,519,497	10.9%	26,858,972	14.0%
6	27.5 - 32.5 mph	829,256	7.4%	6,385,193	13.0%	4,936,666	9.3%	8,063,525	14.7%	1,926,818	8.4%	22,141,457	11.6%
7	32.5 - 37.5 mph	1,006,064	9.0%	5,582,430	11.4%	4,604,806	8.6%	6,934,350	12.6%	1,848,130	8.0%	19,975,780	10.4%
8	37.5 - 42.5 mph	58,211	0.5%	3,476,685	7.1%	2,065,304	3.9%	4,700,607	8.6%	143,005	0.6%	10,443,812	5.5%
9	42.5 - 47.5 mph	130,335	1.2%	3,257,381	6.7%	2,645,702	5.0%	3,856,103	7.0%	271,201	1.2%	10,160,722	5.3%
10	47.5 - 52.5 mph	42,081	0.4%	4,339,873	8.9%	4,991,267	9.4%	3,697,800	6.7%	96,742	0.4%	13,167,763	6.9%
11	52.5 - 57.5 mph	61,602	0.6%	3,308,256	6.8%	5,619,340	10.5%	3,477,688	6.3%	392,052	1.7%	12,858,938	6.7%
12	57.5 - 62.5 mph	2,969,468	26.5%	3,872,384	7.9%	7,814,961	14.6%	2,878,687	5.2%	6,036,822	26.2%	23,572,322	12.3%
13	> 62.5 mph	4,158,897	37.2%	3,411,326	7.0%	6,149,698	11.5%	2,511,964	4.6%	7,574,086	32.9%	23,805,972	12.4%
	TOTAL	11,186,335	100.0%	48,974,913	100.0%	53,349,865	100.0%	54,890,221	100.0%	23,054,213	100.0%	191,455,547	100.0%



Appendix D
List of Transportation Control Measures (TCM) Projects

TCM A: Regional Express Bus

Regional Express Bus Program

Vehicle Deployment Throughout the Bay Area[1]

February 18, 2009

Transit Operator	Vehicle Type	Serial Registration[2]	Funds Obligated	Operating Agency	Route	Weekday Service Hours	Weekend Service Hours
AC Transit[3]	Over-The-Road	1M8PDMPA43P055640	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA63P055641	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA83P055642	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPAX3P055643	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA33P055645	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA53P055646	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA73P055647	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA93P055648	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA73P055650	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA93P055621	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA03P055652	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA23P055653	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA43P055654	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA63P055655	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPAX3P055657	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA13P055658	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA33P055659	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPAX3P055660	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA13P055661	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA73P055664	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA83P055656	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA03P055666	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA93P055665	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA53P055663	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA33P055662	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA23P055667	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA03P055649	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPAX3P055674	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA43P055668	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA63P055669	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA23P055670	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA43P055671	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA63P055672	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA83P055673	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA33P055676	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA53P055677	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	IM8PDMPA73P055678	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA93P055679	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Over-The-Road	1M8PDMPA13P055675	3/25/2001	AC Transit	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Suburban	15GCD201531111916	1/27/2003	AC Transit - Transferred from SamTrans[4]	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Suburban	15GCD201731111917	1/27/2003	AC Transit - Transferred from SamTrans[4]	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Suburban	15GCD201931111918	1/27/2003	AC Transit - Transferred from SamTrans[4]	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
	Suburban	15GCD201031111919	1/27/2003	AC Transit - Transferred from SamTrans[4]	Transbay - Bay, San Mateo, and Dumbarton Bridges	5:00 AM - 12:45 AM	5:30 AM - 12:50 AM
CCCTA	Suburban	15GDD271X21111662	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111663	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111664	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111665	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111666	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111667	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111668	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111669	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111670	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111671	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111672	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111673	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	
	Suburban	15GDD271X21111674	3/25/2002	CCCTA	960B & 960C Mitchell Drive Park & Ride/Bishop Ranch	**960B** 5:15 AM - 7:51 PM **960C** 6:15 AM - 7:50 PM	

TCM A: Regional Express Bus

Regional Express Bus Program

Vehicle Deployment Throughout the Bay Area[1]

February 18, 2009

Transit Operator	Vehicle Type	Serial Registration[2]	Funds Obligated	Operating Agency	Route	Weekday Service Hours	Weekend Service Hours
Fairfield-Suisun	Over-The-Road	1M8PDMPA13P055949	11/14/2002	Fairfield-Suisun	40 Vacaville/Fairfield to Pleasant Hill/Walnut Creek BART	5:00 AM - 9:57 AM & 3:01 PM - 8:31 PM	
	Over-The-Road	1M8PDMPA83P055950	11/14/2002	Fairfield-Suisun	40 Vacaville/Fairfield to Pleasant Hill/Walnut Creek BART	5:00 AM - 9:57 AM & 3:01 PM - 8:31 PM	
	Suburban	15GCD201731111920	1/27/2003	Fairfield-Suisun - Transferred from SamTrans[4]	30 Fairfield to Davis/Sacramento	6:08 AM - 7:05 PM	Sat Only 8:03 AM - 4:43 PM
	Suburban	15CGD201931111921	1/27/2003	Fairfield-Suisun - Transferred from SamTrans[4]	30 Fairfield to Davis/Sacramento	6:08 AM - 7:05 PM	Sat Only 8:03 AM - 4:43 PM
Golden Gate	Over-The-Road	1M8PDMPA53PO55680	11/8/2002	Golden Gate	71 Novato/San Rafael/Marin City/San Francisco	6:35 AM - 8:27 PM	Sat Only 6:59 AM - 7:28 PM
	Over-The-Road	1M8PDMPA73P055681	11/8/2002	Golden Gate	71 Novato/San Rafael/Marin City/San Francisco	6:35 AM - 8:27 PM	Sat Only 6:59 AM - 7:28 PM
	Over-The-Road	1M8PDMPA93PO55682	11/8/2002	Golden Gate	72 Santa Rosa/Rohnert Park/Cotati/San Francisco	3:54 AM - 8:59 AM & 2:12 PM - 8:05 PM	
	Over-The-Road	1M8PDMPAO3PO55683	11/8/2002	Golden Gate	72 Santa Rosa/Rohnert Park/Cotati/San Francisco	3:54 AM - 8:59 AM & 2:12 PM - 8:05 PM	
	Over-The-Road	1M8PDMPA23PO55684	11/8/2002	Golden Gate	75 Santa Rosa/Rohnert Park/Cotati · Petaluma /Marin Civic Center/San Rafael	5:02 AM - 8:35 AM & 2:59 PM - 7:18 PM	
	Over-The-Road	1M8PDMPA43PO55685	11/8/2002	Golden Gate	75 Santa Rosa/Rohnert Park/Cotati · Petaluma /Marin Civic Center/San Rafael	5:02 AM - 8:35 AM & 2:59 PM - 7:18 PM	
LAVTA	Suburban	15GDD271521110872	3/25/2002	LAVTA	70X Pleasanton - Walnut Creek Express	5:09 AM - 9:16 AM & 3:19 PM - 7:42 PM	
	Suburban	15GDD271721110873	3/25/2002	LAVTA	70X Pleasanton - Walnut Creek Express	5:09 AM - 9:16 AM & 3:19 PM - 7:42 PM	
	Suburban	15GDD271921110874	3/25/2002	LAVTA	70X Pleasanton - Walnut Creek Express	5:09 AM - 9:16 AM & 3:19 PM - 7:42 PM	
	Suburban	15GDD271021110875	3/25/2002	LAVTA	70X Pleasanton - Walnut Creek Express	5:09 AM - 9:16 AM & 3:19 PM - 7:42 PM	
NCTPA	Suburban	15GCD201631111911	1/27/2003	SamTrans Transfering to NCPTA on 2/28/09	June 2009 - Calistoga/Yountville/Napa/American Canyon/Baylink Ferry Terminal	5:00 AM-6:30 PM; Peak Only	
	Suburban	15GCD201831111912	1/27/2003	SamTrans Transfering to NCPTA on 2/28/09	June 2009 - Calistoga/Yountville/Napa/American Canyon/Baylink Ferry Terminal	5:00 AM-6:30 PM; Peak Only	
Tri-Delta	Over-The-Road	1M8PDMPA63P055686	11/8/2002	Tri-Delta	300 Express Commuter Service Brentwood/Pittsburg BART	4:15 AM - 9:07 PM	
	Over-The-Road	1M8PDMPA63P055687	11/8/2002	Tri-Delta	300 Express Commuter Service Brentwood/Pittsburg BART	4:15 AM - 9:07 PM	
	Over-The-Road	1M8PDMPA63P055688	11/8/2002	Tri-Delta	300 Express Commuter Service Brentwood/Pittsburg BART	4:15 AM - 9:07 PM	
	Over-The-Road	1M8PDMPA63P055689	11/8/2002	Tri-Delta	300 Express Commuter Service Brentwood/Pittsburg BART	4:15 AM - 9:07 PM	
Vallejo	Over-The-Road	1M8PDMPA13P055627	11/14/2002	Leased to Fairfield-Suisun[5]	90 Fairfield/El Cerrito Del Norte BART	4:55 AM - 10:35 PM	
	Over-The-Road	1M8PDMPA33P055628	11/14/2002	Leased to Fairfield-Suisun[5]	90 Fairfield/El Cerrito Del Norte BART	4:55 AM - 10:35 PM	
	Over-The-Road	1M8PDMPA53P055629	11/14/2002	Vallejo	78 Vallejo/Benicia/Pleasant Hill BART/Walnut Creek BART	5:00 AM - 8:38 PM	
	Over-The-Road	1M8PDMPA13P055630	11/14/2002	Leased to Fairfield-Suisun[5]	90 Fairfield/El Cerrito Del Norte BART	4:55 AM - 10:35 PM	
	Over-The-Road	1M8PDMPA33P055631	11/14/2002	Leased to Fairfield-Suisun[5]	90 Fairfield/El Cerrito Del Norte BART	4:55 AM - 10:35 PM	
	Over-The-Road	1M8PDMPA53P055632	11/14/2002	Vallejo	78 Vallejo/Benicia/Pleasant Hill BART/Walnut Creek BART	5:00 AM - 8:38 PM	
	Over-The-Road	1M8PDMPA73P055633	11/14/2002	Vallejo	78 Vallejo/Benicia/Pleasant Hill BART/Walnut Creek BART	5:00 AM - 8:38 PM	
	Over-The-Road	1M8PDMPA93P055634	11/14/2002	Vallejo	78 Vallejo/Benicia/Pleasant Hill BART/Walnut Creek BART	5:00 AM - 8:38 PM	
	Over-The-Road	1M8PDMPA03P055635	11/14/2002	Vallejo	78 Vallejo/Benicia/Pleasant Hill BART/Walnut Creek BART	5:00 AM - 8:38 PM	
	Over-The-Road	1M8PDMPA23P055636	11/14/2002	Leased to Fairfield-Suisun[5]	90 Fairfield/El Cerrito Del Norte BART	4:55 AM - 10:35 PM	
	Over-The-Road	1M8PDMPA43P055637	11/14/2002	Leased to Fairfield-Suisun[5]	90 Fairfield/El Cerrito Del Norte BART	4:55 AM - 10:35 PM	
	Over-The-Road	1M8PDMPA83P055639	11/14/2002	Leased to Fairfield-Suisun[5]	90 Fairfield/El Cerrito Del Norte BART	4:55 AM - 10:35 PM	
WestCat	Suburban	15GCD211121111974	3/7/2002	WestCat	30Z Hercules Transit Center/Martinez/BART	5:59 AM - 8:03 PM	
	Suburban	15GCD211521111975	3/7/2002	WestCat	30Z Hercules Transit Center/Martinez/BART	5:59 AM - 8:03 PM	
	Suburban	15GCD211121111976	3/7/2002	WestCat	30Z Hercules Transit Center/Martinez/BART	5:59 AM - 8:03 PM	
	Suburban	15GCD201X31111913	1/27/2003	WestCat - Transferred from SamTrans[4]	LYNX Rodeo/Hercules/San Francisco Transbay Terminal	5:00 AM - 9:45 AM & 3:30 PM - 8:33 PM	
	Suburban	15GCD201131111914	1/27/2003	WestCat - Transferred from SamTrans[4]	LYNX Rodeo/Hercules/San Francisco Transbay Terminal	5:00 AM - 9:45 AM & 3:30 PM - 8:33 PM	
	Suburban	15GCD201331111915	1/27/2003	SamTrans[4]	LYNX Rodeo/Hercules/San Francisco Transbay Terminal	5:00 AM - 9:45 AM & 3:30 PM - 8:33 PM	

1. Please note: MTC does not currently have information compiled on cumulative operating hours for all of the TCRP buses. For projects where the buses have been assigned to routes receiving operating funds that are tied to required performance measures, MTC has data compiled on the annual performance of those routes.
2. Each vehicle may be deployed on any of the approved routes listed for each operator.
3. Vehicles are deployed as needed for various routes on weekdays and weekends. All transbay service does not operate on weekends, but all vehicles may be deployed on weekend transbay service.
4. SamTrans REX service was discontinued in 2007 due to low ridership; all 11 TCRP vehicles purchased for the REX service were reallocated to AC Transit, Fairfield-Suisun Transit, WestCat, and NCTPA.
5. Route 90 service was transferred from Vallejo to Fairfield-Suisun Transit in 2006.

TCM B: Bicycle/Pedestrian Program
TDA ARTICLE 3 [Transportation Development Act Funds for Bicycle and Pedestrian Projects]

	SPONSOR	PROJECT NAME	AMOUNT
FY 2003-04	Alameda County	ADA Compliant Accessible Ramps	$ 105,767
FY 2003-04	Alameda County	Tesla Road Bicycle Lanes	$ 51,000
FY 2003-04	City of Albany	Manor Way Pedestrian Improvements	$ 22,706
FY 2003-04	City of Berkeley	Bicycle Safety Education	$ 30,000
FY 2003-04	City of Berkeley	Prepare plan for implementing future	$ 31,033
FY 2003-04	City of Fremont	Bike Detectors, Bike Logo on Pavement,	$ 128,989
FY 2003-04	City of Hayward	Installation of Wheelchair Ramps	$ 84,198
FY 2003-04	City of Livermore	Complete Portion of S. Livermore Valley	$ 97,301
FY 2003-04	City of Newark	Silliman Activity Center Pedestrian/	$ 59,158
FY 2003-04	City of Oakland	Bancroft Ave. Bike Lanes (96th - Durant)	$ 96,000
FY 2003-04	City of Oakland	Citywide Ped. Curb Ramp Program -	$ 295,266
FY 2003-04	City of Oakland	Lake Merritt 12th St. Dam Ped/Bike	$ 116,000
FY 2003-04	City of Oakland	Pedestrian Bulb Outs-Highland &	$ 100,000
FY 2003-04	City of Oakland	Walk/Bike Calif. Conf. - Alameda Co.	$ 30,000
FY 2003-04	City of Oakland	West City of Oakland Bay Trail	$ 289,000
FY 2003-04	City of Piedmont	Sidewalk Extension and Curb Cuts	$ 6,506
FY 2003-04	City of Pleasanton	ADA Compliant Wheelchair Accessible	$ 38,627
FY 2003-04	City of San Leandro	Install New Curb Cuts & Upgrade	$ 40,000
FY 2003-04	City of Brentwood	Installation of Wheelchair Ramps	$ 30,000
FY 2003-04	City of Concord	Iron Horse Trail Rte 242 Undercrossing	$ 36,000
FY 2003-04	City of Concord	Wren Avenue Ped. Improvements	$ 45,000
FY 2003-04	Contra Costa County	Bicycle/Pedestrian Safety Education	$ 21,500
FY 2003-04	Contra Costa County	Olympic Blvd. Ped. Path Phase II	$ 115,000
FY 2003-04	City of Lafayette	Hough Avenue Sidewalk	$ 37,000
FY 2003-04	City of Moraga	Rheem Blvd./Moraga Rd. Intersection	$ 66,100
FY 2003-04	City of Pittsburg	Polaris Drive Bike Facility	$ 77,500
FY 2003-04	City of San Ramon	Dougherty Road Sidewalk	$ 25,000
FY 2003-04	Marin County	Bicycle/Pedestrian Bridge	$ 140,000
FY 2003-04	Mill Valley	Signage Project	$ 7,200
FY 2003-04	City of Novato	Commuter Bikeway Connection	$ 402,286
FY 2003-04	City of Novato	Hill Road Path Connection	$ 60,000
FY 2003-04	City of San Anselmo	Purchase & Install Bicycle Racks	$ 15,000
FY 2003-04	Napa County	Yountville Cross Rd. Bike Lane	$ 150,000
FY 2003-04	Yountville	Yountville Cross Rd. Bike Lane	$ 47,000
FY 2003-04	City of Campbell	Westmont Ave. Improvement Project	$ 43,192
FY 2003-04	City of Los Altos	Fremont Ave. Sidewalk Phase III	$ 15,781
FY 2003-04	Los Altos Hills	Paseo Del Roble Pedestrian Bridge	$ 9,554
FY 2003-04	City of Milpitas	Calaveras Blvd. Sidewalk & Bike Path	$ 36,895
FY 2003-04	Mountain View	Access Ramp Installation	$ 24,905
FY 2003-04	Mountain View	Audible Ped. Signal Installations	$ 16,500
FY 2003-04	Mountain View	Bicycle Path Construction	$ 13,113
FY 2003-04	Palo Alto	Baffle Replacements: Calif. Ave.	$ 15,993
FY 2003-04	Palo Alto	Homer Ave. Ped. Bicycle Undercrossing	$ 293,000
FY 2003-04	Palo Alto	Ped. Walkway Lighted Warning System	$ 20,000
FY 2003-04	City of San Jose	ADA Wheel Chair Curb & Ramp Install.	$ 100,000
FY 2003-04	City of San Jose	Certified TDA Fiscal Audit	$ 9,000
FY 2003-04	City of San Jose	Murdock Park Bridge over San Tomas	$ 100,000
FY 2003-04	City of San Jose	Ped & Bike Facility Signing & Striping	$ 100,000
FY 2003-04	City of San Jose	Ped & Bike Safety Education	$ 50,000
FY 2003-04	City of San Jose	Pedro Street Sidewalk Improvement	$ 124,434
FY 2003-04	City of San Jose	Street Sidewalk Improvement	$ 147,435
FY 2003-04	City of Santa Clara	Certified TDA Fiscal Audit	$ 5,000
FY 2003-04	City of Santa Clara	Install Bike & Ped. Improvements	$ 61,815
FY 2003-04	City of Santa Clara	Update City's Existing Bike Plan &	$ 3,900
FY 2003-04	Santa Clara County	Bike Detector @ various Intersections	$ 58,118

TCM B: Bicycle/Pedestrian Program
TDA ARTICLE 3 [Transportation Development Act Funds for Bicycle and Pedestrian Projects]

	SPONSOR	PROJECT NAME	AMOUNT
FY 2003-04	Santa Clara County	Path along McKee Rd. bet Staples Ave.	$ 50,000
FY 2003-04	City of Saratoga	Saratoga Avenue Walkway Project	$ 17,254
FY 2003-04	City of Sunnyvale	Calabazas Creek Trail	$ 50,152
FY 2003-04	San Francisco City and County	Bicycle Projects	$ 404,000
FY 2003-04	San Francisco City and County	Pedestrian Projects	$ 300,000
FY 2003-04	City of Half Moon Bay	Construct Rt. 92 Bicycle Lanes and	$ 485,146
FY 2003-04	City of Pacifica	Milagra Drive Overcrossing at State	$ 240,000
FY 2003-04	City of San Bruno	Crystal Springs Rd. Traffic Signal	$ 20,000
FY 2003-04	City of San Mateo	Bikeway Detection Units	$ 30,000
FY 2003-04	City of San Mateo	Regional Bayfront Trail Upgrade	$ 150,000
FY 2003-04	South San Francisco	Construct San Francisco Bay Trail	$ 100,000
FY 2003-04	South San Francisco	Orange Avenue Intersection Improve.	$ 100,000
FY 2003-04	City of Benicia	Park Road Bike/Ped Improvements	$ 160,000
FY 2003-04	Solano County	Dixon to Davis Bike Route	$ 125,000
FY 2003-04	City of Suisun City	Central County Bikeway	$ 25,000
FY 2003-04	City of Healdsburg	Foss Creek Northwestern Pacific Multi-	$ 99,695
FY 2003-04	City of Petaluma	Washington Creek Multi-Use Path	$ 175,000
FY 2003-04	City of Santa Rosa	Sonoma Ave. Bike Lanes Phase II	$ 50,000
FY 2003-04	Sonoma County	Old Redwood Highway Class II Bike Lanes	$ 350,000
FY 2004-05	Alameda County	Conduct a planning study & develop	$ 38,000
FY 2004-05	Alameda County	Conduct bicycle plan study	$ 59,650
FY 2004-05	Alameda County	Sign & stripe 0.6 miles of 6-foot wide	$ 100,000
FY 2004-05	City of Berkeley	Contract with a qualified consultant	$ 34,281
FY 2004-05	City of Berkeley	Educate children about bicycle safety	$ 30,000
FY 2004-05	City of Fremont	Stripe bike lanes, modify bike lane	$ 121,168
FY 2004-05	City of Hayward	Design & construct ADA wheel chair	$ 88,925
FY 2004-05	City of Newark	Design & construct ADA wheel chair	$ 27,009
FY 2004-05	City of Piedmont	Design & construct ADA wheel chair	$ 6,852
FY 2004-05	City of Pleasanton	Preserve Golf Course	$ 75,000
FY 2004-05	City of San Leandro	Install curb ramps, accessible ped.	$ 41,438
FY 2004-05	City of San Leandro	Install curb ramps, accessible ped.	$ 50,024
FY 2004-05	City of San Leandro	Install curb ramps, accessible ped.	$ 8,000
FY 2004-05	City of Antioch	Improve curbs, ramps, crosswalk, signs	$ 80,000
FY 2004-05	City of Brentwood	Install lighted crosswalk and flashing lights	$ 31,500
FY 2004-05	City of Concord	Construct 500 ft of 4-to 6-foot wide bike/ped path	$ 45,000
FY 2004-05	City of El Cerrito	Conduct a planning study for bicycle/ped needs	$ 26,500
FY 2004-05	City of Lafayette	Construct 125 feet of 5-foot wide	$ 10,000
FY 2004-05	City of Martinez	Replace the two existing unsafe bridges	$ 90,000
FY 2004-05	City of Orinda	Develop a Lamorinda Trail Map & install	$ 28,500
FY 2004-05	City of Pittsburg	Construct Class II and Class III	$ 51,000
FY 2004-05	City of Pittsburg	Sign & stripe 3600 feet of 13-foot wide	$ 52,000
FY 2004-05	City of San Pablo	Install bike/ped friendly lighting	$ 45,100
FY 2004-05	City of Walnut Creek	Construct 2040 feet of asphalt walkway	$ 95,000
FY 2004-05	Contra Costa County	Construct 344 feet of 4.5-foot wide bike/ped path	$ 201,000
FY 2004-05	Contra Costa County	Construct 402 feet of 5-foot wide bike/ped path	$ 158,928
FY 2004-05	Contra Costa County	Provide bicycle & pedestrian safety	$ 20,000
FY 2004-05	City of San Rafael	Construct 6' wide sidewalk & stripe	$ 207,710
FY 2004-05	City of Sausalito	Construct 6' wide sidewalk & stripe	$ 186,290
FY 2004-05	City of Calistoga	Construct 1.0 miles of Class I bike-ped path	$ 270,881
FY 2004-05	City of Napa	Construct 2.0 miles of Class I bikeway	$ 149,727
FY 2004-05	City of Campbell	Construct Class II bike lockers at J.D.	$ 24,308
FY 2004-05	City of Campbell	Widen & regrade bicycle/Pedestrian	$ 515,600
FY 2004-05	City of Cupertino	Construct 1030' bike path	$ 107,622
FY 2004-05	City of Gilroy	Complete 881' of Uvas Creek Class I	$ 50,000
FY 2004-05	City of Gilroy	Refurbish & replace bikeway signs, etc	$ 10,611

TCM B: Bicycle/Pedestrian Program
TDA ARTICLE 3 [Transportation Development Act Funds for Bicycle and Pedestrian Projects]

	SPONSOR	PROJECT NAME	AMOUNT
FY 2004-05	City of Gilroy	Rehabilitate, resurface & stripe 2.5 mile path	$ 60,666
FY 2004-05	City of Los Altos	Construct approx. 300' of concrete bike path	$ 27,354
FY 2004-05	City of Los Altos	Replace approx. 2,800 lineal feet of bike path	$ 17,580
FY 2004-05	City of Los Gatos	Design & construct solution to restore path	$ 35,000
FY 2004-05	City of Morgan Hill	Install bicycle sensitive detector	$ 36,000
FY 2004-05	City of Mountain View	Install countdown pedestrian signals	$ 30,000
FY 2004-05	City of Mountain View	Install curb access ramps at Showers	$ 2,381
FY 2004-05	City of Mountain View	Install curb access ramps at various	$ 15,696
FY 2004-05	City of Mountain View	Purchase & install 14 bicycle lockers	$ 14,506
FY 2004-05	City of Palo Alto	Construct raised pavement pedestrian path	$ 50,000
FY 2004-05	City of San Jose	Construct 0.66 miles of Class I paved path	$ 712,131
FY 2004-05	City of San Jose	Design & construct ADA wheel chair improvement	$ 176,068
FY 2004-05	City of San Jose	Design & construct sidewalk for school	$ 36,000
FY 2004-05	City of San Jose	Design & install 12' wide asphalt path	$ 136,821
FY 2004-05	City of San Jose	Install median island ped. Refuge	$ 185,000
FY 2004-05	City of San Jose	Install sidewalk, ADA curb ramps	$ 90,000
FY 2004-05	City of San Jose	Provide bicycle & pedestrian safety	$ 50,000
FY 2004-05	City of San Jose	Stripe crosswalks, paint pavements	$ 100,000
FY 2004-05	City of Santa Clara	Perform an annual transportation	$ 5,000
FY 2004-05	City of Santa Clara	Stripe crosswalks & paint pavements	$ 62,148
FY 2004-05	City of Saratoga	Install continuous curb & gutter	$ 19,357
FY 2004-05	City of Sunnyvale	Provide gates, signs, fencing and ramps	$ 27,550
FY 2004-05	Santa Clara County	Construct a 3,300' by 5' walkway	$ 63,403
FY 2004-05	Santa Clara County	Sign & restripe 8" stripe on shoulders	$ 121,105
FY 2004-05	SF City/County	Bicycle safety brochures, maps, public education	$ 31,500
FY 2004-05	SF City/County	Prelim. engineering (plan & design) of bike path	$ 200,000
FY 2004-05	SF City/County	Purchase & install bicycle racks	$ 95,000
FY 2004-05	SF City/County	Repair public sidewalks at various locations	$ 115,000
FY 2004-05	SF City/County	Stripe & sign Class II bike lanes	$ 188,500
FY 2004-05	City of Benicia	Final design plans, specs & estimate	$ 124,573
FY 2004-05	City of Suisun City	Constr. 10' wide concrete bike path	$ 86,000
FY 2004-05	City of Vacaville, Transit	Construct 3400 feet of Class I bike/Ped path	$ 148,738
FY 2004-05	Solano Transportation Authority (STA)	Build bridge adjacent to existing path	$ 76,000
FY 2004-05	City of Petaluma	Construction of pedestrian & bicycle path	$ 54,876
FY 2004-05	City of Rohnert Park	Install 80' long bicycle & pedestrian path	$ 160,000
FY 2004-05	City of Santa Rosa	Install directional signage & ADA signs	$ 18,900
FY 2004-05	County of Sonoma	Construct 1.5 miles of Class I Bikeway	$ 160,000
FY 2004-05	County of Sonoma	Conduct bicycle safety education workshop	$ 10,000
FY 2004-05	County of Sonoma	Install 27 "Share Road" bicycle sign	$ 15,000
FY 2004-05	County of Sonoma	Purchase 37 front loading bicycle	$ 5,000
FY 2005-06	San Carlos	Class II bike lanes on Alameda de Las Pulgas and on Brittan Avenue; Class III bike lanes on Old County Road	$ 20,000
FY 2005-06	San Mateo	Design of a pedestrian and bicycle bridge in the vicinity of the Hillsdale interchange of highway U.S. 101	$ 100,000
FY 2005-06	South San Francisco	Bicycle and pedestrian crosswalk and signals at intersection of Spruce Ave. and South San Francisco Linear Park	$ 150,000
FY 2005-06	Half Moon Bay	Construct 6600 foot Class I trail in the right of way of Highway 1 between Highway 92 and Higgins Purisima Rd.	$ 220,000
FY 2005-06	Brisbane	Install 45 feet by 8 feet asphalt cement path adjacent to Shoreline Court; sign and restripe existing Class II bikeway	$ 25,739

TCM B: Bicycle/Pedestrian Program
TDA ARTICLE 3 [Transportation Development Act Funds for Bicycle and Pedestrian Projects]

	SPONSOR	PROJECT NAME	AMOUNT
FY 2005-06	South San Francisco	Construct 363 feet by 12 feet asphalt bicycle and pedestrian trail near the Oyster Point Marina	$ 36,000
FY 2005-06	San Bruno	Construct a Class II bike lane in both directions of Sneath Lane from El Camino Real to Skyline Boulevard	$ 60,000
FY 2005-06	Daly City	Install bike lanes on Callan Blvd from King Dr to Serramonte Blvd and along Serramonte Boulevard	$ 82,000
FY 2005-06	Burlingame	Install bike lane directional signs at 52 locations along north-south bicycle routes throughout the city	$ 17,400
FY 2005-06	Burlingame	Install an in-pavement lighted crosswalk system across Carolan Avenue at Morrell Avenue, including new push buttons	$ 30,000
FY 2005-06	Menlo Park	Install video detection for bikes at 3 intersections: Willow at Middlefield, Marsh at Bohannon, Marsh at Bay	$ 44,000
FY 2005-06	San Mateo	Install bridge railing fencing on the north side of the Nineteenth Avenue Bridge over highway U.S. 101	$ 50,000
FY 2005-06	Menlo Park	Create bicycle lanes on Bay Road between Berkeley Avenue and Willow Road, plus signage	$ 13,600
FY 2005-06	San Mateo	Install bike detection loops at: 3rd + Claremont, 3rd + Delaware, 4th + Claremont, 4th + Delaware	$ 40,000
FY 2005-06	Daly City	Install in-pavement lights and warning signs: Park Plaza Dr. north of Belmar, and Mission St. at Evergreen Ave.	$ 120,000
FY 2005-06	San Mateo	Install pedestrian countdown signal heads at 27 existing signalized intersections throughout the city	$ 50,000
FY 2005-06	Daly City	Install pedestrian countdown signal heads at 15 signalized intersections; and audible warnings at 11 of them	$ 20,000
FY 2005-06	Burlingame	Install pedestrian countdown signal heads with audible pedestrian warnings at 8 signalized intersections	$ 30,900
FY 2005-06	Menlo Park	Create bicycle lanes on Middlefield Road between Willow Road and San Francisquito Creek	$ 2,400
FY 2005-06	San Mateo	Install in-pavement lighted crosswalks: 5th Ave. at Central Park; Bovet Rd. betw. Borel Ave. and El Camino Real	$ 110,000
FY 2005-06	South San Francisco	Install pedestrian countdown signal heads at 12 existing signalized intersections throughout the city	$ 22,000
FY 2005-06	County of San Mateo	Bike detection loops, countdown signal heads with audible warnings, upgrade pedestrian signal actuators	$ 80,509
FY 2005-06	Sebastopol	Construct .5 mile Class I trail between Joe Rodota trail and Sebastopol Avenue and Morris Street intersection	$ 51,356
FY 2005-06	Santa Rosa	Construct connector ramp between Joe Rodota trail and Pierson Reach of Prince Memorial Greenway trail	$ 350,000
FY 2005-06	Windsor	Construct a 950 foot Class I trail within Keiser Park, including brdige crossing a tributary of Starr Creek	$ 112,000

TCM B: Bicycle/Pedestrian Program
TDA ARTICLE 3 [Transportation Development Act Funds for Bicycle and Pedestrian Projects]

	SPONSOR	PROJECT NAME	AMOUNT
FY 2005-06	Contra Costa County, Health Services	Provide bicycle and pedestrian safety education to low-income county residents, particularly children	$ 20,000
FY 2005-06	Concord	Constr't 500 foot Class I trail adjacent to Galindo Crk. + Ygnacio Valley Rd betw. Alberta Way + Pebble Glen Dr	$ 60,000
FY 2005-06	Lafayette	1030 feet x 5 feet sidewalk Sweet Dr. betw Walnut + Woodview; Woodview Dr. betw. St Mary's + Sweet Drive	$ 110,000
FY 2005-06	Antioch	Construct curb ramps and sidewalks at Hillcrest Avenue, Somersville Road, "G" Street, and Dallas Ranch Road	$ 110,000
FY 2005-06	Brentwood	Install pedestrian countdown signal heads + large diameter pedestrian push buttons at 12 signalized intersections	$ 66,000
FY 2005-06	Contra Costa County, Public Works	Construct 240 feet x 5 feet sidewalk and curb ramps on Camino Tassajara and on Hansen Lane	$ 20,000
FY 2005-06	Orinda	Replace 12 existing non-compliant curb ramps in downtown Orinda with ADA compliant ramps	$ 45,000
FY 2005-06	San Pablo	Install in-pavement lighted crosswalks: Market Avenue at 21st St.; 23rd St. at Wilcox Ave.; 23rd St. at Stanford Ave.	$ 180,000
FY 2005-06	Brentwood	Restripe Minnesota Ave. bike lane; install lighted crosswalk; construct 1300 feet of sidewalk, curb and gutter	$ 31,000
FY 2005-06	San Francisco	Public sidewalk repair and reconstruction	$ 180,000
FY 2005-06	San Francisco	Preliminary engineering of curb ramps	$ 270,000
FY 2005-06	San Francisco	Safety brochures, maps, public outreach concerning bicycle pavement arrows, hotline, and bicycle safety advertising	$ 45,000
FY 2005-06	San Francisco	Purchase and install bicycle racks at various locations in San Francisco as requested by the public	$ 100,000
FY 2005-06	San Francisco	Stripe and sign bike lanes: Conservatory Drive East, San Jose Avenue ramps, Townsend Street, and elsewhere	$ 305,000
FY 2005-06	Berkeley	Bicycle & Pedestrian Injury Prevention Program	$ 30,000
FY 2005-06	Berkeley	Ninth Street Bicycle Boulevard extension (Project from FY01/02)	$ 135,000
FY 2005-06	Oakland	ADA Compliant Wheelchair Accessible Ramps (Project Completed FY01/02)	$ 294,548
FY 2005-06	Oakland	Laurel Pedestrian Project, Phase I (Project Completed FY01/02)	$ 200,000
FY 2005-06	Oakland	MacArthur Blvd. Bicycle Lane Design (Project Completed FY01/02)	$ 55,000
FY 2005-06	Oakland	Grand Avenue Transit and Pedestrian Improvements (Project from FY 04/05)	$ 245,847
FY 2005-06	Oakland	ADA Compliant Wheelchair Accessible Ramps Program	$ 121,144
FY 2005-06	Oakland	Market Street Bikeway	$ 165,000
FY 2005-06	Oakland	Bancroft Bikeway Gap Closures	$ 25,000
FY 2005-06	Piedmont	ADA Wheelchair Accessible Ramps and Pedestrian enhancements at Rose/Arroyo & Grand Ave	$ 8,353
FY 2005-06	Hayward	ADA Wheelchair Accessible Ramps	$ 109,309

TCM B: Bicycle/Pedestrian Program
TDA ARTICLE 3 [Transportation Development Act Funds for Bicycle and Pedestrian Projects]

	SPONSOR	PROJECT NAME	AMOUNT
FY 2005-06	San Leandro	Pedestrian Accessibility Improvements & Sidewalk Gap Closures	$ 74,177
FY 2005-06	Fremont	Citywide ADA Compliant Wheelchair Accessible Ramps	$ 158,067
FY 2005-06	Newark	History Center Complex Sidewalks and ADA Wheelchair Accessible Ramps	$ 33,072
FY 2005-06	Union City	San Francisco Bay Trail Specific Plan (Project Completed FY01/02)	$ 63,585
FY 2005-06	Dublin	Bicycle Master Plan	$ 45,144
FY 2005-06	Livermore	Chestnut and N. P Street Bicycle Lanes	$ 113,044
FY 2005-06	Alameda Co. Congestion Management Agency	Alameda Countywide Bicycle Master Plan	$ 20,000
FY 2005-06	County of Alameda	Pedestrian Safety Improvements in the vicinity of Schools	$ 75,775
FY 2005-06	County of Alameda	Pedestrian Safety Improvement Projects - Sidewalk Improvements	$ 75,600
FY 2005-06	County of Alameda	Restriping Bicycle Lanes Along Various Roadways	$ 30,000
FY 2005-06	Benicia	Stripe and sign bike lanes: Military East between East 5th Street and Park Road	$ 25,000
FY 2005-06	Fairfield	Design McGary Road segment of Solano Bikeway Extension and complete extension feasibility study	$ 100,000
FY 2005-06	Suisun City	Construct curb ramps and sidewalks at Whispering Bay Lane and Francisco Dr.	$ 5,400
FY 2005-06	Suisun City	Replace existing non-compliant curb ramps in downtown Suisun City with ADA compliant ramps	$ 11,856
FY 2005-06	Solano County	Reconstruct deck and railings, seismic retrofit, lighting and pathways to railroad trestle bridge over Putah Creek	$ 180,000
FY 2005-06	Campbell	Implement bike lanes on Harriet Ave and Union Ave, Replace Los Gatos creek bridge, and widen Campbell Ave bridge	$ 27,859
FY 2005-06	Campbell	Design and construct sidewalk and bike lanes and edge striping, curb and gutter along Westmont Avenue	$ 39,992
FY 2005-06	Campbell	Widen Campbell Ave. bridge over Los Gatos Creek for bike lane and sidewalk; and reconstruct sidewalk under SR 17	$ 240,000
FY 2005-06	Cupertino	Construct pedestrian and bicycle bridge across Interstate 280 along Mary Avenue between Homestead Rd and Meteor Dr	$ 38,361
FY 2005-06	Los Altos Hills	Replace pedestrian bridge adjacent to the Foothill College entrance road connecting to El Monte Road	$ 11,310
FY 2005-06	Los Gatos	Replace existing College Avenue sidewalk and fencing; and repair Los Gatos Creek Trail footbridge decking	$ 20,000
FY 2005-06	Milpitas	Install ADA pedestrian ramps with truncated dome landings along suggested routes to schools	$ 47,112
FY 2005-06	Morgan Hill	Identify where additional bicycle and pedestrian trails can be established adjacent to creeks and streams	$ 32,000
FY 2005-06	Mountain View	Bicycle boulevard from Mayfield Mall area to Stevens Creek Trail, including signs, markings and signal modifications	$ 25,000

TCM B: Bicycle/Pedestrian Program
TDA ARTICLE 3 [Transportation Development Act Funds for Bicycle and Pedestrian Projects]

	SPONSOR	PROJECT NAME	AMOUNT
FY 2005-06	Mountain View	ADA Compliant Wheelchair Accessible Ramps Program	$ 17,000
FY 2005-06	Mountain View	Produce bicycle and pedestrian education and awareness materials, and a new bike map and multilingual flyers	$ 5,000
FY 2005-06	Mountain View	Install "bikes wrong way" signs on existing poles along California Street and adjacent streets	$ 5,217
FY 2005-06	Palo Alto	Bicycle boulevard along Maybell Ave and Donald Dr.: signs, markings, speed tables, & median refuge islands	$ 75,000
FY 2005-06	San Jose	Install sidewalk, curb and gutter to improve access to Lynhaven Elementary School	$ 90,000
FY 2005-06	San Jose	Install sidewalk, curb and gutter to fill gap on Borina Ave. at Saratoga Ave.	$ 70,000
FY 2005-06	San Jose	Install sidewalk, curb and gutter to improve access on both sides of Yerba Buena Road at Thompson Creek	$ 47,000
FY 2005-06	San Jose	Install sidewalk, curb, gutter and ADA ramps on Carola Avenue at Clarita Avenue	$ 110,000
FY 2005-06	San Jose	Install sidewalk, curb, gutter, pedestrian crossing and median island to provide access to Penitencia Creek County Park	$ 62,000
FY 2005-06	San Jose	Install sidewalk, curb and gutter on Senter Road at Burke Street	$ 58,000
FY 2005-06	San Jose	Install sidewalk, curb and gutter to improve access to Toyon Elementary School	$ 45,000
FY 2005-06	San Jose	Citywide ADA Compliant Wheelchair Accessible Ramps	$ 100,000
FY 2005-06	San Jose	Sign and stripe bicycle and pedestrian facilities, including bike lanes, bike routes, crosswalks, and bike paths	$ 58,397
FY 2005-06	San Jose	Provide bicycle and pedestrian safety education to elementary school children and adults, purchase educational material	$ 35,000
FY 2005-06	Santa Clara	Install and maintain bicycle and pedestrian facilities, including bike lanes, bike routes, crosswalks, and bike paths	$ 78,180
FY 2005-06	Saratoga	Acquire right-of-way to upgrade UPRR railroad crossing in a bulb configuration to allow bicycles to cross at 90 degrees	$ 95,000
FY 2005-06	Sunnyvale	Improve Calabazas Creek Trail with additional gates, signs, fences, ramp modifications, and a bridge across creek	$ 182,048
FY 2005-06	County of Santa Clara	Restripe four co. expressways' shoulders with 8 inch stripes and sign to allow functioning as bicycle shoulder	$ 50,000
FY 2005-06	Brentwood	Crosswalk and sidewalk improvements on Minnesota Avenue between Deer Creek and Sand Creek	$ 31,000
FY 2005-06	Union City	Construct 1750 feet by 15 feet textured decorative concrete sidewalks plus 5 foot bike lanes on both sides of 11th Street	$ 53,142
FY 2005-06	TAM	Update and complete bicycle and pedestrian master plans countywide and for cities and towns in Marin County	$ 160,000

TCM B: Bicycle/Pedestrian Program
TDA ARTICLE 3 [Transportation Development Act Funds for Bicycle and Pedestrian Projects]

	SPONSOR	PROJECT NAME	AMOUNT
FY 2005-06	Campbell	Construct bike lanes on Harriet Avenue north of Westmont Avenue and on Union Avenue south of Campbell Avenue	$ 24,308
FY 2005-06	Larkspur	Design + construct 13 ft wide Class I bike/pedestrian path and modify signals on Magnolia Ave. + Doherty Dr	$ 136,668
FY 2005-06	County of San Mateo	Develop bike route data for GIS, integrate into countywide GIS files, and maintain bike route GIS data	$ 40,000
FY 2005-06	City of Napa	Class I path along Napa Valley Wine Train right of way between Redwood Rd/SR 29 and Vallejo St/Soscol Av	$ 85,271
FY 2005-06	American Canyon	Construct bike lanes and Class I trail adjacent to Commerce Boulevard	$ 34,729
		Total	**$ 21,785,915**

TCM C: Transportation for Livable Communities

FY 2004-05 MTC TLC Planning Program

Project Sponsor	Project Title	TLC Grant
Alameda County		
City of Oakland	Revitalizing Foothill / Seminary: A Model for Oakland's Regional Transit Streets	$ 75,000
City of Berkeley	Downtown Berkeley BART Plaza and Transit Area	$ 75,000
Contra Costa County		
City of Lafayette	BART-Downtown Lafayette Pedestrian Linkages Project	$ 20,000
San Francisco County		
San Jose/Guerrero Coalition to Save Our Streets	The San Jose/Guerrero Neighborhood Plan	$ 75,000
San Mateo County		
Redwood City	Transit Station Sub-area Precise Plan	$ 71,760
SamTrans	Transforming the El Camino Real to Link Caltrain Stations with Vibrant Downtowns in Redwood City, San Carlos and Belmont	$ 63,840
Santa Clara County		
City of Sunnyvale	Murphy Avenue Streetscape Revitalization	$ 75,000
Sonoma County		
City of Santa Rosa	Downtown Pedestrian Linkages Study	$ 44,400
	Total	**$ 500,000**

FY 2004-05 MTC TLC Capital Program

Project Sponsor	Project Title	TLC Grant
City of Oakland, CEDA	Revive Chinatown – Phase 1	$ 2,200,000
City of Union City Public Works Dept.	Union City Intermodal Station –Pedestrian connections and New East Plaza	$ 1,124,000
Richmond Redevelopment Agency	Richmond Transit Village: Intermodal Transit Station	$ 1,581,000
County of Marin	Cal-Park Hill Tunnel Rehab and Class I Bikeway	$ 1,500,000
City of Gilroy	Monterey Streetscape Improvements – Fourth Street to Sixth Street	$ 2,500,000
City of Morgan Hill	Morgan Hill – Depot Street Capital Improvements	$ 2,627,000
Bay Area Rapid Transit District	Daly City BART- St. Charles Pedestrian & Bike Project	$ 501,000
City & Co. of San Francisco Dept. of Public Works	Broadway Streetscape Improvements Project – Phase II	$ 2,000,000
City of South San Francisco	BART Linear Park-Huntington Avenue to Orange Avenue	$ 1,933,000
City of Vallejo	Vallejo Station Pedestrian Links	$ 2,071,000
City of Petaluma/Eden Housing Inc.	Downtown River Apts Riverwalk and Streetscape Improvements	$ 358,000
	Total	***$ 18,394,000***

Contingency Projects

City of Union City Public Works Dept.	Union City Intermodal Station – West Plaza Enhancements	$ 1,713,500
City of Oakland, CEDA	MacArthur Transit Hub Streetscape Improvement Project	$ 1,918,000
Town of Los Gatos Parks & Public Works Dept.	Streetscape & Gateway	$ 2,400,000
City of San Leandro Community Dev. Dept.	East 14th Street South Area Revitalization Project – La Palma District	$ 1,600,000
County of Contra Costa Redevelopment Agency	North Richmond Third Street Upgrades	$ 1,966,000

TCM C: Transportation for Livable Communities

FY 2005-06 Marin County TLC Capital Program

Project Sponsor	Project Title	TLC Grant
Town of Fairfax	Center Boulevard Streetscape Redesign Project	$ 500,000
County of Marin	Fireside Pedestrian and Traffic Safety Project	$ 198,906
Town of Corte Madera	Bayside Trail Improvement Project	$ 371,826
	Total	**$ 1,070,732**

FY 2005-06 Alameda County TLC Capital Program

Project Sponsor	Project Title	TLC Grant
City of Oakland	Coliseum BART Streetscape	$ 500,000
City of Oakland	Oakland Coliseum Pedestrian Walkway	$ 885,000
City of Oakland	W. Oakland Transit Village Streetscape Project	$ 1,300,000
City of Oakland	MacArthur Entry Plaza & 40th Streetscape Project	$ 1,147,000
City of Berkeley	Ashby/Ed Roberts Bicycle/Pedestrian Improvements	$ 1,200,000
City of Union City	Pedestrian/Bicycle Improvements	$ 2,000,000
	Total	**$ 7,032,000**

FY 2005-06 Sonoma County TLC Capital Program

Project Sponsor	Project Title	TLC Grant
City of Petaluma	Petaluma Blvd. Pedestrian Enhancements	$ 485,000
City of Rohnert Park	Rohnert Park City Center Drive Improvements	$ 1,150,000
Town of Windsor	Windsor Pedestrian Enhancements & Traffic Calming	$ 235,000
Sonoma County Reg'l Parks	Sonoma County Santa Rosa Creek Trail	$ 550,000
Town of Windsor	Windsor Old Redwood Hwy Pedestrian Linkages	$ 338,000
Sonoma County Reg'l Parks	Sonoma County Bodega Bay Bicycle & Pedestrian Trail	$ 535,000
City of Santa Rosa	Santa Rosa Courthouse Square Off-Site Improvements & Gateway Street	$ 1,000,000
	Total	**$ 4,293,000**

	Grand Total	**$ 31,289,732**

TCM D: Additional Freeway Service Patrol

The Bay Area FSP is a joint project of the Metropolitan Transportation Commission Service Authority for Freeways and Expressways (MTC SAFE), the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). The service is provided by private tow truck companies, selected through a competitive bid process, under contract to MTC SAFE. During the hours of operation, the vehicles and drivers are exclusively dedicated to patrolling their freeway beat. The program is intended to augment the MTC SAFE network of motorist-aid call boxes in the nine Bay Area counties.

Current Profile (as of February 2009)
A fleet of 83 trucks patrols some 550 miles of the Bay Area's freeways. Patrol routes are selected based on several factors, including a high rate of traffic and congestion, frequent accidents or stalls, and lack of shoulder space for disabled vehicles.

The FSP tow trucks operate primarily during morning and afternoon commute hours, generally from 6 a.m. to 9 a.m. or 10 a.m. and from 3 p.m. to 6 p.m. or 7 p.m., Monday through Friday. Weekend service is provided in Napa, as well as seasonally along Highway 17, and in some other locations on Sunday.

FSP tow trucks are equipped for nearly any contingency. In addition to the standard auto repair and towing equipment, they carry 5 gallons of diesel fuel, 5 gallons of unleaded gasoline, and 5 gallons of water, as well as an external speaker and public address system.

Funding
The tow trucks are financed with federal, state and local moneys. Local funds come from the MTC SAFE, which is financed by a $1 annual vehicle registration fee in participating counties. The service costs approximately $7 million a year to operate. Another $2 million is invested in sophisticated communications equipment, including an automatic vehicle location system that enables CHP and Caltrans to monitor the location of the trucks and improve dispatching efficiency.

Implementation Plan
See the attached Implementation Plan, which is also available at:
http://www.fsp-bayarea.org/implementation_plan/Iplan.pdf

BAY AREA FREEWAY SERVICE PATROL PROGRAM
IMPLEMENTATION PLAN

Revised 06/01/07

BEAT ID	CONTRACTOR	LOCATION		BEAT LIMITS	CALTRANS ONE WAY LENGTH (IN MILES)	START DATE	ENDING DATE	WEEKDAYS			SUNDAY PM SHIFT	# OF TOW TRUCKS	# OF PICKUP TRUCKS	# OF FLATBED TRUCKS	# OF BACKUP TRUCK	NOTES	TOTAL CONTRACT HOURS	BEAT ID
		COUNTY	ROUTE					AM SHIFT	MIDDAY SHIFT	PM SHIFT								
1	Redhill Towing	ALA	980	Interstate 580 to Interstate 880	2.03	07/01/07	07/26/09	6:00-10:00		15:00-18:30	13:00-19:00	2	1			b	12,395	1
		ALA	880	7th Street to Jackson Street	2.04													
		ALA	24	Interstate 580 to Contra Costa County Line	4.39													
		CC	24	Contra Costa County Line to Oak Hill Road	6.25													
		CC/ALA	*13*	*State Route 24 to Redwood Avenue*	(4.23)											c		
2	A-One Towing Service	ALA	80	Powell Street to Contra Costa County Line	4.25	07/01/07	07/26/09	6:00-10:00	10:00-15:00	15:00-19:00	13:00 - 19:00	2	1		1	a, b, c	15,755	2
		CC	80	Alameda County Line to San Pablo Dam Road	4.34													
		ALA/CC	580	Interstate 80 to Western Drive/Pt. Molate	6.01													
3	Palace Garage	ALA	880	Alvarado-Niles Road to State Route 238	7.66	06/25/07	06/26/11	06:00-10:00		15:00-19:00	13:00-19:00	2				b,c	17,132	3
		ALA	92	Interstate 880 to Clawiter Road	1.91													
4	Palace Garage	ALA	880	Broadway to State Route 238	10.55	07/01/07	07/26/09	6:00-10:00		15:00-19:00	13:00-19:00	2	1			b	13,170	4
		ALA	238	Interstate 880 to Interstate 580	2.11													
5	K&S Tow	CC	680	Stone Valley Road to Marina Vista Road	13.89	07/02/07	07/04/11	06:00-09:00		14:00-18:30		2	1		1	b	22,523	5
		CC	24	Oak Hill Road U/C to Interstate 680	2.87													
6	B&A Body Works & Towing	SM	101	State Route 92 to SF City Limit/101 to Foster City Boulevard	14.23	07/01/07	07/05/09	6:00-10:00	10:00-15:00	15:00-19:00		2	2		1	a, b	18,754	6
		SM	92	Interstate 101 to Foster City Boulevard	1.47													
7	Redhill Towing	MRN	101	Alexander to 3rd Street/Irwin Street (Central San Rafael Exit)	10.28	07/03/05	07/06/08	6:00-10:00		15:00-19:00	13:00 - 19:00	2			1	b, c	13,090	7
		MRN	580	Highway 101 to Interstate 580 San Quetin	1.60													
8	Campbell's Towing	SCL	101	Blossom Hill Road to Ellis Street	18.40	07/01/07	07/05/09	6:00-10:00		15:00-19:00	13:00 - 19:00	2	2		1	b, c	16,808	8
		SCL	237	Highway 101 to Lawrence Expressway	2.12													
9	Campbell's Towing	SCL	280	Interstate 680/Highway 101 to Foothill Exp.	11.45	06/11/07	06/10/11	6:00-10:00		15:00-19:00		3	1		1	b	32,032	9
		SCL	85	Junction Route 280 to El Camino Real	3.3													
		SCL	87	State Route 85 to Hwy. 101	9.22													
10	Sunrise Enterprise 87	SCL-SM	101	Ellis Street to State Route 92	17.44	06/11/07	06/10/11	6:00-10:00		15:00-19:00		2	1			a, b	24,024	10
		SCL	92	Junction Route 101 to El Camino Real	0.93													
11	B&A Body Works & Towing	SF	101	Cesar Chavez to San Mateo Co. Line	2.92	06/11/07	06/12/11	6:00-10:00	10:00-15:00	15:00-19:00	10:00-16:00	2				a, b,c	22,473	11
		SF	280	San Mateo Co. Line to Highway 101	4.34													
		SM	101	Harney Way to San Francisco Co. Line	0.41													
		SM	280	Geneva/Ocean Avenue to San Francisco Co. Line	1.77													
	(Bridge Tow Coverage)	*SF*	*280*	*Highway 101/Interstate 280 Interchange to Sixth Street*	(3.2)											c		
	(Bridge Tow Coverage)	*SF*	*80*	*Cesar Chavez to Interstate 80/Fourth Street*	(1.5)											c		
12	Ken Betts Towing	CC	80	San Pablo Dam Road to Cummings Skyway	8.39	07/09/07	07/10/11	6:00-10:00	10:00-15:00	15:00-19:00	13:00-19:00	2				a, b, c	22,473	12
13	Bill's Towing	MRN	101	Interstate 580 to Junction Route 37	9.13	06/25/07	06/26/11	6:00-10:00		14:30-18:30	13:30-18:30	2				b, c	17,282	13
14	All Ways Tow & Transport	ALA	880	Mowry Avenue to Alvarado Niles Road	5.84	07/01/07	07/24/09	6:00-10:00		15:00-19:00		2				b	8,272	14
		ALA	84	Thornton Avenue to Interstate 880	2.26													
15	Yarbrough Bros. Towing	SON	101	Wilfred Avenue to River Road	10.8	07/02/07	07/01/11	6:30-9:30		15:30-18:30		1					6,006	15
16	Lima Tow	SCL	17	Junction Route 9 to Summit Road	7.07	07/09/07	07/10/11	6:30-9:30		15:30-18:30	See separate beat 16/SC schedule	1				b, c, f	7,974	16
17	Sierra Hart	SOL	12	Interstate 80 to Napa Co. Line	2.95	07/23/07	07/24/11	6:00-10:00		15:00 -19:00	8:00-16:30 Sat. & Sun.	1 wkdy, 2 wknd			1 wkdy		15,573	17
		NAP	12	Napa Co. Line to Sonoma Co. Line	11.60													
		NAP	29	State Route 37 to Oakville Cross Road	24.0													
		SON	12	Sonoma Co. Line to Junction 116	4.90													
		NAP	*29*	*Oakville Cross Road to State Route 128*	(1.8)											c		
18	All Ways Tow & Transport	SCL	880	Junction Route 237 to Alameda County Line	2.08	07/01/07	07/10/09	6:00-10:00		15:00-19:00		2				b	8,112	18
		ALA	880	SCL County Line to Mowry Avenue	7.18													
19	Lima Tow	SCL	880	Junction Route 237 to Junction Route 17	8.42	07/01/07	07/10/09	6:00-9:00		15:00-19:00		2	1			b	10,647	19
		SCL	17	Junction Interstate 880 to Junction Route 9	6.88													
		SCL	237	Junction Interstate 880 to Lawrence Expressway	4.70													
20	Nelson's Tow	SM	280	*Geneva/Ocean Avenue* to Interstate 380	8.18	07/01/07	07/10/09	6:30-9:30		15:00-18:00		2				b	6,084	20
		SM	380	Interstate 280 to Highway 101	1.67													
21	Matos Towing & Transport	ALA	680	Scott Creek to Alcosta Boulevard	21.35	07/01/07	07/10/09	5:30-9:30		15:00-19:00		1	1	1	1	b	12,168	21
22	Palace Garage	ALA	580	Vasco Road to Santa Rita	8.25	07/23/07	07/24/11	5:30-9:30		15:30-19:00	13:00-19:00	2	1			b, c, d	25,685	22
		ALA	580	Grant Line Road to Vasco Road	8.23													
23	Campbell's Towing	SCL/ALA	680	Highway 101 to Scott Creek Road	10.17	07/01/07	07/10/09	5:30-9:30		15:00-19:00		2				b	8,112	23
24	Roadrunner Tow	SOL	680	Interstate 80 to Junction 780	14.30	07/23/07	07/22/11	6:00-9:00		15:30-18:30		1				g	6,036	24
		SOL	780	Junction 680 to Junction 80	6.42													
25	B&D Towing	CC	4	Hillcrest Avenue to Pacheco Blvd.	20.39	07/01/07	07/17/09	5:30-9:30		15:30-19:00		2	1			b	11,520	25
		CC	242	State Route 4 to Interstate 680	3.4													
26	A-One Tow Service	ALA	580	Harrison Street/Oakland Avenue to Junction Route 238	13.47	07/01/07	07/17/09	6:30-9:30		15:30-18:30		1		1		b	6,144	26
		ALA	*13*	*Redwood Avenue to Interstate 580*	(0.0)											e		
27	Palace Garage	ALA	580	Santa Rita Road to Junction 238	12.86	06/25/07	06/26/11	6:00-9:30		15:30-18:30	13:00-19:00	2	1			b,c	21,020	27
28	Bill's Towing	MRN/SON	101	State Route 37 to East Washington Boulevard	13.1	07/01/07	07/17/09	5:30-9:30		15:30-18:30		1				b	3,584	28
29	Roadrunner Tow	SOL	80	Magazine Street to Abernathy Road	14.04	07/09/07	07/10/11	6:00-9:00		15:30-18:30	13:00-19:00	2				b, c, h	15,020	29
					0													
30	Nelson's Tow	SM	92	State Route 1 to Highway 280	8.03	07/23/07	07/22/11	6:00-9:30		15:30-18:30		2				b	13,013	30
		SM	280	Interstate 380 to State Route 92	10.20													
		SM	92	Interstate 280 to Highway 101	4.83													
31	Campbell's Towing	SCL	101	Blossom Hill Road to East Dunne Avenue	12.6	07/01/07	07/19/09	6:00-9:00		16:00-19:00	13:00 - 19:00	2				b, c	6,900	31
32	Dick's Automotive Transport	SCL	85	Interstate 280 to Cottle Road	16.48	07/01/07	07/17/09	6:00-9:00		16:00-19:00		2				b	6,144	32
33	Yarbrough Bros. Towing	SON	101	East Washington Boulevard to Wilfred Avenue	10.26	07/24/05	07/20/08	6:00-9:00		15:30-18:30		1				b	4,482	33
34	Vacaville Tow	SOL	80	Abernathy Road to I-505 Vaca Valley Road	12.54	07/09/07	07/10/11	6:00-9:00		15:30-18:30	13:00-19:00	2				b, c, h	15,020	34
35	Palace Garage	CC	680	Alcosta Boulevard to Stone Valley Road	10.36	07/09/07	07/08/11	6:00-9:00		15:00-18:30		1				b	6,507	35
36	Ken Betts Towing	CC	4	Interstate 80 to Pacheco Blvd.	11.8	07/23/07	07/22/11	6:00-9:30		15:30-19:00		1					7,007	36
37	Vacaville Tow	SOL	80	Junction I-505 to Richards Blvd.	16.4	07/23/07	07/24/11	6:00-9:00		15:30-18:30	13:00-19:00	2				b, c, h	15,032	37
					539.67							65 wkdy, 66 wknd	15	2	8 wkdy, 7 wknd		493,973	

TCM E: Transit Access to Airports

BART to San Francisco International Airport:
S. San Francisco: From Colma BART station to the new SFO station; Extend BART system to the San Francisco International Airport.

BART Fares and Schedules
The latest BART fares and schedules (as of January 2008) can be found at: http://www.bart.gov/guide/brochures.aspx

Service Adjustments
See attached document for service adjustments overtime since June 2003 through December 2006.

SFO Service Changes Over Time

Below is a list and description of service changes that have been implemented since the San Francisco Extension opening on June 22, 2003 through December 31, 2006. Some of these changes are major system changes. Other changes are more minor involving train sizing.

June 22, 2003 - SFO Initial Service

Bay Point trains provide service to Millbrae during all hours of operation, all week. Dublin trains provide service to the San Francisco Airport (SFO) during all hours of operation, all week. These routes operate on 15 minute headways during the weekday, and on 20 minute headways during evenings and on weekends. A shuttle train provides service between Millbrae and SFO on 20 minute headways during all hours of operation, all week. In addition to the base 15 minute service, three AM peak period rush trains provide service from Bay Point to Daly City, then operate express from Daly City to SFO. These three trains return during the evening peak period and operate express from SFO to Daly City, then on to Bay Point.

1. Direct service to/from Millbrae and direct service to/from SFO
2. Peak rush trains provide Bay Point line passengers direct service to/from SFO during the peak periods
3. 20 minute shuttle does not synch with the 15 minute base service during the day

February 9, 2004

Bay Point trains provide direct service to SFO, then continue to Millbrae. On the return trip these trains follow the same route back to Bay Point. This service route has been called the "Reverse L" service because the shape of the service on the SFO extension resembles a backward or reverse "L" shape. During the 3-1/2 hour AM and PM peak period on weekdays, Richmond trains provide direct service to Millbrae, then continue to SFO. On the return trip these trains follow the same route back to Richmond. This service route is referred to as the "L" service. The Richmond trains do not operate on the weekend. When the Richmond trains are operating on the extension during the week the Bay Point trains terminate at SFO and do not continue to Millbrae. At all other times (off-peak, evenings and weekends) the Bay Point trains complete the "Reverse L" service pattern. There are no other direct peak period rush trains. Service during the day (and during the peak rush) is 15 minutes, while evenings and weekends operate at 20 minute headways.

1. Provides for direct service on all extension routes to Millbrae and SFO, no need to transfer
2. 20 minute shuttle (during normal 15 minute service) replaced by 15 minute direct trains
3. During off-peak, evenings and weekends, direct service to Millbrae is through the SFO station

March 8, 2004

Train sizing adjustments: Train 361 increased from 4 to 5-car train off-peak. Train 441 changed to 10-car peak size for all PM trips instead of breaking to 5-car train on last trip. Other minor adjustments were made to the 200s and 500s.

September 13, 2004

Bay Point trains provide direct service to SFO, then continue to Millbrae. This service provides "Reverse L" service and operates during all hours of operation, all week. During the 3 hour AM and PM peak period on weekdays, Richmond trains provide direct service to SFO, then continue to Millbrae in a "Reverse L" service configuration. During the 3 hour AM and PM peak period (weekdays only) the Richmond and Bay Point trains both provide service directly to and from Millbrae/SFO. The Richmond trains do not operate on the weekend. Service during the day on each route (and during the peak rush) is 15 minutes, while evenings and weekends operate at 20-minute headways.

1. Provides for direct service on all extension routes to Millbrae and SFO, no need to transfer

2. During all hours, direct service to Millbrae is through the SFO station (but is effectively every 7.5 minutes during the 3 hour AM and PM peak periods)

December 13, 2004
Train sizing adjustments were made to better match capacity with demand, generally to shorter trains.

April 23, 2005
Train sizing adjustments: The 300 series trains on Saturday were increased from 8 to 9-car trains.

June 13, 2005
Train lengths were generally shortened to an 8-car plan in two phases, in June and August, 2005, with peak size trains running all day on the Bay Point line.

August 15, 2005
Second phase of implementing the "8-car" plan.

September 12, 2005
Dublin trains provide direct service to SFO, then continue to Millbrae in a "Reverse L" service configuration. Only the Dublin trains will provide service to the extension on weekdays and weekends. Richmond and Bay Point trains will truncate at Daly City. Service during the day (and during the peak rush) is 15 minutes, while evenings and weekends operate at 20-minute headways. Although direct service from Bay Point has been replaced with this new service, the transfer time from a Bay Point base train to SFO train (from Dublin) is only 3-4 minutes in each direction.

September 22, 2005
Extend service from Richmond and lengthen trains. Up to six consists will be lengthened from 4 to 8-car trains. Richmond trains to Daly City will be extended to Colma for two hours in the morning and two hours in the evening.

October 10, 2005
The following adjustments were made:

Weekday
100s - three trains lengthened
200s - one train lengthened, Make/Break timing changed
300s - several trains lengthened with a few trains reduced in size
400s - one train lengthened
500s - No change since September 22, 2005 (Make/Break timing)

Saturday
300s - some trains lengthened

Sunday
300s - some trains lengthened

December 5, 2005
The following adjustments were made:

Weekday
100s – 115 becomes the last AM Break train
300s – Train 323 and 363 increased from 8-car to 9-car trains

Saturday
200s – All trains are now 6-car trains during the day

January 30/31, 2006e
The following adjustments were made:

Weekday
100 Series Trains (net +1)
Train 101 +1 (9 to 10 cars) peak increase
Train 115 off peak increase 4 to 5 cars

200 Series Trains (net 0)
No change

300 Series Trains (net –2)
Train 365 off peak decrease only on dispatches of 20:58, 22:19, and 23:38
Train 367 +1 (9 to 10 cars) off peak decrease only on dispatches of 21:18, 22:39, and 24:00
Train 371 –1 (10 to 9 cars)
Train 377 –1 (10 to 9 cars)
Train 381 –1 (10 to 9 cars)
Train 331 -2 (10 to 8 cars)
Train 335 +2 (8 to 10 cars)

400 Series Trains (net +2)
Train 443 –1 (9 to 8 cars) for AM peak period only
Train 445 +1 (8 to 9 cars)
Train 453 –1 (9 to 8 cars) for PM peak period only
Train 455 +2 (8 to 10 cars) and off peak increase 4 to 5 cars

500 Series Trains (net +10)
Train 501 +1 (8 to 9 cars) peak increase and off peak increase 4 to 5 cars
Train 503 +1 (8 to 9 cars) peak increase and off peak increase 4 to 5 cars
Train 505 +1 (8 to 9 cars) peak increase
Train 507 +1 (8 to 9 cars) peak increase
Train 509 +1 (8 to 9 cars) peak increase
Train 511 +1 (8 to 9 cars) peak increase
Train 513 +1 (8 to 9 cars) peak increase and off peak decrease 8 to 5 cars
Train 519 +1 (8 to 9 cars) peak increase
Train 521 +1 (8 to 9 cars) peak increase and off peak increase 4 to 5 cars
Train 523 +1 (8 to 9 cars) peak increase

Saturday
100s – no change
200s – no change
300s – All 8-car trains are now 9-car trains
400s – no change
500s – Four trains increased from 4 to 5-cars (501, 505, 511, and 515)

Sunday
200s – no change
300s – no change
500s – All trains 9-car midday and some offpeak increased from 4 to 5-cars (503, 505, and 515)

Appendix E
Comments on the Draft Conformity Analysis

Transportation Solutions Defense and Education Fund

P.O. Box 151439 San Rafael, CA 94915 415-460-5260

January 20, 2009
By E-Mail

Steve Heminger, Executive Director
Metropolitan Transportation Commission
101 Eighth Street
Oakland, CA 94607

Re: Draft Conformity Analysis

Dear Steve:

The Transportation Solutions Defense and Education Fund, TRANSDEF, is pleased to offer the following comments on the Draft Conformity Analysis for the Transportation 2035 Plan and the 2009 TIP Amendment #09-06:

The Dumbarton Rail Corridor Phase 1 is an element of Phase 2 of TCM 4 in the Bay Area 2005 Ozone Strategy. The proposed transfer of $91 million in RM 2 funding for the construction phase of this project will affect the timing of the implementation of TCM 4. Unless there is a commitment to the timely replacement of these funds by the time the project is ready for construction, MTC will have interfered with the Air District's statutory responsibility to implement "all feasible measures" to reduce ozone. While not directly related to the proposed Conformity Findings of timely TCM implementation, MTC's proposed funding action will have a significant impact on the commitments of a sister agency.

As regards the TIP Amendment, what due diligence has been performed on the cost estimate for the "BART Warm Spring to San Jose Extension" (sic) project that makes up over half of the Grand Total of $11.69 billion of projects being added to the TIP? What was the year of the cost estimate that was escalated into $6.1 billion in Year of Expenditure dollars? Can MTC confirm that this is the most recent cost estimate? We are aware that VTA completed 65% design-level cost estimates last year, which were witheld from the public during the campaign for Santa Clara County's Measure B.

In looking at Appendix B, the listing of projects is very heavily front-loaded. It seems highly unlikely that so many projects can be "Complete and Operational by 2015." Please advise as to whether the phasing of projects will affect the model outputs for the various analysis years enough to change the Conformity Analysis.

We believe a better choice for the gasoline price assumption used in modelling would be the result from the 5 year linear regression model. This 5 year period has had far greater gas price volatility than the 10 year period that was chosen for the Conformity Analysis and RTP EIR. We expect gas prices to fluctuate much more in the future than they have in the past, due to the clash between the flattening of global oil production and exponentially growing demand.

The issue here is not accurate prediction--the issue is risk management, and making sure that MTC has created the most resilient plan possible to enable Bay Area residents to cope with large changes in the cost of transportation. Please remember that many consider the root of the current home foreclosure crisis to be the extraordinary jump in gasoline prices, which made mortgages unaffordable for many when coupled with the high cost of commuting from the urban fringe.

We are pleased to see that MTC has agreed with our suggestion that bridge tolls should escalate with inflation, in the same manner as transit fares are escalated.

We raise again the comment we have raised in past plans: Using VMT derived from ARB data sources places larger traffic volumes into speed buckets for the EMFAC model than are derived from the model at equilibrium. We therefore don't have confidence in the emissions projections, because we don't believe that these traffic volumes can physically occur as modelled.

We never accepted the MTC assertion that the programming of funds for the Express Buses under TCM A constitutes full implementation of the TCM. Knowing that "the buses ordered … will be redeployed in alternate services" is inadequate for us. Please provide a listing of where the Express Buses purchased under TCM A have been deployed, as well as the number of vehicle revenue hours each of them has accumulated.

Table 6 is incorrect when it comes to TCM E. Changes in service to Millbrae and other Peninsula stations on the BART SFO extension bring into question whether TCM E is still fully implemented. Please provide a complete narrative of changes in service on the SFO extension, and correct the statement "Service was maintained through 2006 and is continued."

Thank you for this opportunity to comment on the Draft Conformity Analysis.

Sincerely,

/s/ DAVID SCHONBRUNN

David Schonbrunn,
President

Appendix F
Methodology for Bay Area Conformity Determinations

Winston H. Hickox
Agency Secretary

Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman
1001 I Street • P.O. Box 2815 • Sacramento, California 95812 • www.arb.ca.gov

Gray Davis
Governor

November 30, 2001

Mr. Wayne Nastri
Regional Administrator
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105

Dear Mr. Nastri:

The Air Resources Board (ARB/Board) hereby transmits the Bay Area emission factor model (SF Bay Area-EMFAC 2000) to the U.S. Environmental Protection Agency (U.S. EPA) for approval and use in the 2001 San Francisco Bay Area State Implementation Plan (Bay Area SIP) and subsequent Bay Area conformity determinations.

SF Bay Area-EMFAC 2000 is tailored specifically to the San Francisco Bay Area. The emission factors contained in SF Bay Area-EMFAC 2000, along with updated activity data from the Metropolitan Transportation Commission (MTC), provide the basis for the mobile source emissions budgets in the 2001 Bay Area SIP. SF Bay Area-EMFAC 2000 will be used for subsequent Bay Area conformity determinations. At a public meeting on November 1, 2001 the ARB Board approved SF Bay Area-EMFAC 2000 for these purposes following a 30-day public notice. At the time the Bay Area SIP was being developed, this model was the most current emission factor model available. SF Bay Area-EMFAC 2000 was based on EMFAC2000. The documentation for EMFAC2000 was publicly available beginning in May 2000 and made available for use by the Bay Area Air Quality Management District when it began developing the 2001 Bay Area SIP in November 2000.

The three Bay Area co-lead agencies responsible for developing the Bay Area SIP have committed to do a mid-course review of the Bay Area SIP by December 31, 2003 and revise the 2001 SIP by March 2004. ARB has committed to submit the revised Bay Area SIP to U.S. EPA by April 15, 2004. The mid-course review will use the most current emission factor model available at that time to develop the mobile source emissions budgets. This model will be EMFAC2001 or its successor.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Website: http://www.arb.ca.gov.

This transmittal provides documentation of the emission factors and activity data used in SF Bay Area-EMFAC 2000 to develop the 2001 Bay Area SIP. In addition, it includes the methodology ARB will be using to conduct Bay Area conformity determinations.

SF Bay Area-EMFAC 2000 Emission Factor Model Documentation

Comparison between MVEI7F/7G and SF Bay Area-EMFAC 2000

The emission factors used in the SF Bay Area-EMFAC 2000 emission factor model represent a major improvement over emission factors used in older models such as MVEI7F and MVEI7G. SF Bay Area-EMFAC 2000 exhaust hydrocarbon emission rates are significantly higher than the emission rates included in the older models. The increase in exhaust hydrocarbon rates is mainly a result of the following changes:

- More accurately reflecting real-world driving by using the Unified Cycle (UC) driving cycle rather than the Federal Test Procedure (FTP);
- Using new speed adjustment factors to better reflect how emissions change as average driving speeds change;
- Representing 45 model years, rather than only 35; and
- Incorporating new vehicle test data.

Evaporative hydrocarbon emission rates in SF Bay Area-EMFAC 2000 are also significantly higher than the older models' emission rates. The most important changes causing the increase in evaporative hydrocarbon emission rates include:

- Higher hot soak emission rates, especially for older catalyst-equipped vehicles;
- Higher running loss emission rates, based on new data; and
- Including emissions for vehicles with liquid fuel leaks.

Emission rates for oxides of nitrogen (NOx) are also significantly higher in SF Bay Area-EMFAC 2000 than in the older models. The increased estimates of NOx emission rates are primarily due to the following changes:

- Inclusion of "off-cycle NOx" (i.e., NOx emissions that were not represented in the certification driving cycle); and
- Incorporation of new vehicle test data for catalyst equipped passenger cars and light trucks.

Incorporation of Latest Standards

SF Bay Area-EMFAC 2000 also includes the effects of recently adopted standards on the emissions of the on-road fleet. The future year emission rates in SF Bay Area-EMFAC 2000 reflect the adopted standards described below.

<u>Supplemental Federal Test Procedure</u>
Two supplemental test procedures to the FTP were adopted by the Board in July of 1997. These new standards are applicable to passenger cars, light-duty trucks, and medium-duty vehicles weighing 8,500 pounds or less. These standards require the

control of excess emission of hydrocarbon and oxides of nitrogen during "off-cycle" operations (high speed and hard acceleration), and excess emissions associated with the use of air conditioning. The new standards are to be phased-in between 2001 and 2005.

Low Emission Vehicles (LEVII)

The second phase of Low Emission Vehicle Standards (LEVII) was adopted by the Board in November of 1998. This action imposed more stringent hydrocarbon, carbon monoxide, NOx and exhaust particulate matter emissions standards for passenger cars, light-duty trucks and medium-duty vehicles up to 14,000 pounds sold in California beginning in 2003.

Near Zero Evaporative Standards

Also in November 1998, the Board adopted new standards for the emissions of evaporative hydrocarbons (diurnal, hot soak and resting loss). The standards were reduced from 2 grams per test (hot soak plus diurnal) for passenger cars, to 0.5 grams per test.

New On-Road Motorcycle Standards

In December of 1998, the Board adopted lower exhaust emission standards for on-road motorcycles. These standards, which may require future motorcycles to utilize catalytic converters, are applicable to new motorcycles sold in California beginning in 2004.

Off-Cycle NOx Mitigation

In a settlement reached between the federal government, the Air Resources Board and heavy-duty engine manufacturers, several mitigation measures were agreed to regarding off-cycle NOx emissions. In addition to ending the practice of defaulting to an advanced timing condition during extended cruise operation, several manufacturers have agreed to perform "low emission" rebuilds for in-use engines. These rebuilds will lower the emissions of the in-use fleet.

New Exhaust Emissions Standards for Urban Transit Buses

In February of 2000, the Board adopted a regulation that allows transit agencies the choice between either a diesel or alternative fuel "path" to lower emissions. Beginning in 2002, over the course of 10 years, this regulation requires increased introduction of

cleaner engine buses in transit agencies' fleets, use of cleaner diesel fuel, retrofits to reduce exhaust particulate matter (PM) emissions from older diesel buses, and use of zero-emission buses (ZEBs).

Public Review

The emission factors used in SF Bay Area-EMFAC 2000 were developed in a 3-year process and were subject to public review and comment during three workshops held in 1998, 1999, and 2000. Throughout the comment period, ARB received a number of written and verbal comments, which were addressed in the development of the emission factor model.

Further detail regarding the development of the SF Bay Area-EMFAC 2000 emission factor model may be found in the attached Technical Support Documentation. The Technical Support Documentation refers to broader work on the statewide EMFAC2000 emission factor model, but also applies to the region specific SF Bay Area-EMFAC2000.

Activity Data Documentation

The Bay Area vehicle miles traveled (VMT), VMT growth rates, and VMT-speed distributions incorporated into SF Bay Area-EMFAC 2000 represent the best current activity data estimates available. The derivation of these estimates are explained below.

Vehicle Miles of Travel

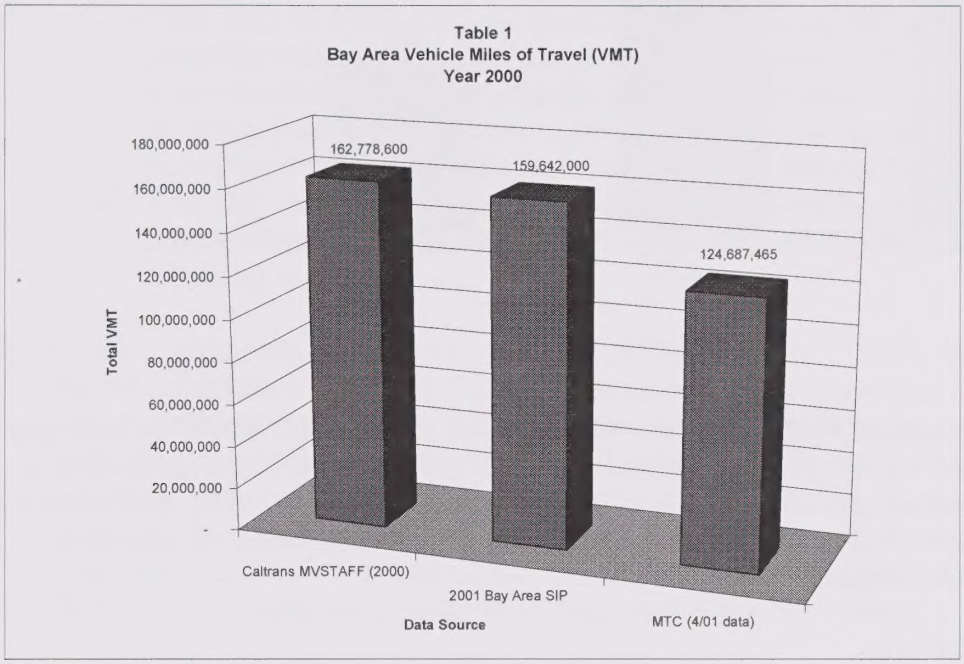
Bay Area VMT estimates for calendar year 2000 are based on the ARB VMT estimation methodology using mileage accrual rates derived from Smog Check odometer data and Department of Motor Vehicle vehicle populations (see Section 7 of the attached Technical Support Documentation for further detail on the ARB VMT estimation methodology).

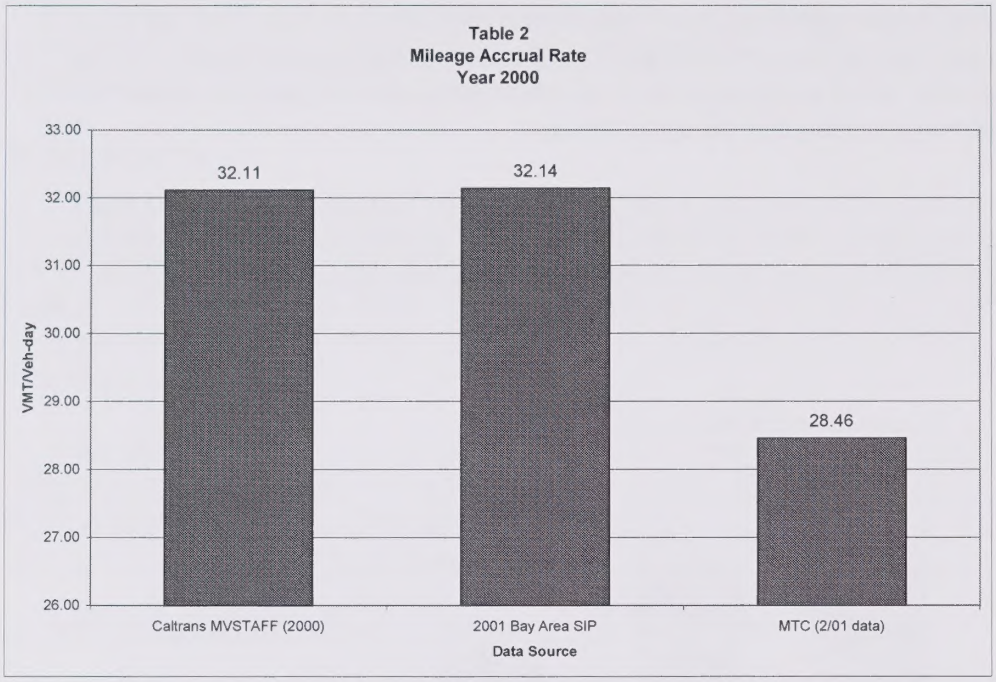
The decision to use ARB's VMT estimate instead of the VMT estimate from MTC's BAYCAST-90 travel demand model for calendar year 2000 was made in an agreement between MTC and ARB. As Table 1 illustrates, MTC's 2000 VMT estimate for the region is about 22 percent lower than both ARB and Caltrans' estimates. The ARB and Caltrans[1] methods for estimating VMT were developed independently of each other, yet fall within 1 percent of each other.
Additional justification for using the ARB VMT estimation methodology is found in the estimate of the number of miles driven by each vehicle per day (i.e., the mileage accrual

[1] Caltrans' VMT estimate was taken from the annual "Motor Vehicle Stock, Travel, and Fuel Forecast" (MVSTAFF) report. The MVSTAFF report forecasts statewide VMT based on statewide vehicle population data from the DMV, fuel consumption estimates from the Board of Equalization, and fuel economy estimates derived from the national fuel economy standards. Statewide VMT estimates are then disaggregated to the county level using county auto registration and road system mileage ratios.

rate). Table 2 compares mileage accrual rates from various data sources. MTC's estimates appear too low to be consistent with odometer readings collected in the Smog Check program. MTC's mileage accrual estimates are 11 percent lower than both Caltrans' ARB's estimates for the Bay Area.

For the purposes of the 2001 Bay Area SIP, MTC agreed to use ARB's 2000 VMT estimate. It was also agreed that the difference in VMT between ARB's and MTC's calendar year 2000 VMT estimates would be used as a "correction" for all future analysis years.





VMT Growth Rates

In the agreement between ARB and MTC, ARB agreed to use MTC's VMT growth rate as implied by the VMT estimates produced by BAYCAST-90. The rationale for this is that while ARB questions the level of travel in calendar year (CY) 2000 as estimated by MTC's travel demand model, ARB is not questioning future year growth projections included in the travel demand model.

VMT-Speed Distributions

The final pieces of activity data provided by MTC and incorporated into SF Bay Area-EMFAC 2000 are the VMT-speed distributions for two calendar years (2000 and 2005). Based on consultation between MTC and ARB staff, ARB incorporated the VMT-speed distributions into SF Bay Area-EMFAC 2000 by applying CY2000 speed distributions to CYs 2000-2003, and CY2005 speed distributions to CYs 2004+.

Methodology for Bay Area Conformity Determinations

For all Bay Area conformity determinations based on the mobile source emissions budgets set in the Bay Area SIP (using SF Bay Area-EMFAC 2000), the following step-wise methodology will be followed:

1. MTC will submit to ARB updated VMT-speed distributions and updated VMT estimates by county for all relevant analysis years. ARB will follow the procedures below for analysis years for which MTC does not submit new activity data (i.e. for which activity data does not change from MTC's original SIP submittal):
    - ARB will use the speed distributions submitted by MTC for the most recent calendar year prior to the analysis year of interest. For example, if MTC submits new VMT-speed distributions for 2005 and 2010, but not for the 2006 analysis year, the 2006 analysis year will use the speed distributions submitted for 2005. VMT-speed distributions will not be interpolated.
    - The VMT estimate for each county will be interpolated using county-specific compounded growth rates.[2] The interpolated VMT will then be used for the following steps.

2. ARB will calculate VMT for the portions of Sonoma and Solano Counties that fall in the San Francisco (S.F.) Air Basin. This is necessary since the SIP budgets are based on the S.F. Air Basin (which covers only the southern portions of Solano and Sonoma Counties), while the MTC VMT estimates include the full nine Bay Area counties. The county portions will be calculated by multiplying the full county VMT submitted by MTC by the VMT ratio (partial county/county) derived from SF Bay Area-EMFAC 2000.[3] In year 2000, about 71 percent of Solano County, and 77 percent of Sonoma County VMT occurred in the S.F. Basin.

3. ARB will calculate the year 2000 difference in VMT between the VMT estimate included in the SF Bay Area-EMFAC 2000 runs[4] and the VMT estimate submitted by MTC for conformity.[5] The resulting differences by county represent the VMT "correction" between ARB and MTC's VMT estimates.

4. The VMT correction will be added by county to the submitted VMT for all analysis years, resulting in the "target" VMT estimate that will be used for the conformity modeling runs.[6]

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[2] For example, 2006 VMT is interpolated from 2005 and 2010 VMT estimates submitted by MTC by the following equation: $VMT_{2006} = (VMT_{2010} / VMT_{2005})^{0.2} * VMT_{2005}$

[3] For the S.F. Basin portions of Solano and Sonoma County VMT:
S.F. Basin County Portion VMT_{MTC} = [S.F. Basin County Portion $VMT_{SFBayArea\text{-}EMFAC2000}$ / Total County VMT $_{SFBayArea\text{-}EMFAC2000}$] * Total County VMT_{MTC}

[4] SF Bay Area-EMFAC 2000 calculates VMT based on Smog Check odometer readings and DMV vehicle registration data for light duty vehicle classes, and instrumented truck data for the truck classes.

[5] VMT $correction_{county\ a}$ = SIP VMT_{CY2000} – MTC VMT_{CY2000}

[6] Target $VMT_{county\ a}$ = MTC $VMT_{county\ a}$ + VMT $correction_{county\ a}$

5. The county-specific target VMT in the conformity modeling runs will be achieved in SF Bay Area-EMFAC 2000 by modifying the county-specific vehicle populations in SF Bay Area-EMFAC 2000 using the What-if-Scenario (WIS) option. Since vehicle population and VMT are linearly related in SF Bay Area-EMFAC 2000, to obtain the "target" vehicle population, ARB staff will take the ratio between the SIP VMT estimates and the target VMT for each analysis year and apply them to the SIP vehicle population estimates for each respective analysis year.[7]

6. Once the target vehicle populations have been calculated, ARB staff will run SF Bay Area-EMFAC 2000 using the WIS option to adjust vehicle populations by county, and incorporate any updated speed distributions.

7. ARB staff will then apply control factors to the model output to adjust for emission reduction measures not included in the SF Bay Area-EMFAC 2000 emission factor model or changed since the model was developed.

8. Finally, ARB staff will compare the results to the SIP budgets for the conformity demonstration.

If you have questions regarding this submittal, you may contact me at (916) 445-4383, or have your staff contact Ms. Cynthia Marvin, Chief of the Air Quality and Transportation Planning Branch, at (916) 322-7236.

Sincerely,

/s/

Michael P. Kenny
Executive Officer

Enclosures

cc: See next page.

[7] Target Veh Pop = [((Target VMT – SIP VMT) / SIP VMT) * SIP Veh Pop] + SIP Veh Pop

cc: (w/o Enclosures)
Mr. Jack Broadbent, Director
Air Division
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105

Ms. Ellen Garvey, Executive Officer
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, California 94109

Mr. Steve Heminger, Executive Director
Metropolitan Transportation Commission
101 Eighth Street
Oakland, California 94607

Mr. Eugene Leong, Executive Officer
Association of Bay Area Governments
101 Eighth Street
Oakland, California 94607

Ms. Cynthia Marvin
Air Resources Board

January 2003

Recommended Methods for Use of EMFAC2002 To Develop Motor Vehicle Emissions Budgets and Assess Conformity

As the agency charged with estimating motor vehicle emissions for air quality plans, the Air Resources Board (ARB) has improved the EMFAC modeling tool for use in combination with estimates of vehicle population and activity to develop motor vehicle emissions budgets and assess transportation conformity. The most recent version of this tool, EMFAC2002, has been transmitted to the U.S. Environmental Protection Agency (U.S. EPA) for approval for use in State Implementation Plans (SIPs) and conformity assessments. This paper describes the recommended practices for ARB, air districts, metropolitan planning agencies (MPOs) and regional transportation planning agencies (RTPAs) to use vehicle activity in conjunction with EMFAC2002 emission rates to calculate emissions budgets and conduct conformity assessments.

The vehicle activity indicators commonly used to develop emissions inventories are vehicle trips and vehicle miles of travel (VMT) by speed, vehicle class and time of day. Though not a direct measure of travel activity, vehicle population may also be a variable for these purposes, as described below.

Vehicle trips. In California, MPOs and RTPAs use demographic forecasts and travel demand models to develop estimates of current and future daily VMT, daily vehicle trips and average travel speeds for links in the transportation network. ARB separately estimates daily vehicle trips, but defines trips as the number of times a vehicle is started, rather than a number of specific daily destinations. This distinction is important; ARB and U.S. EPA studies find that vehicles are started five to six times per day, while trips associated with destinations as reported through travel surveys and predicted in travel demand models occur three to four times per day. Because start emissions and the duration of time between starts are crucial to emissions estimation, ARB equates vehicle trips with vehicle starts. Though EMFAC2002 permits model users to alter estimates of vehicle trips used to estimate emissions, ARB recommends that the model's default estimates of vehicle trips (starts), developed from instrumented vehicle studies, be used for air quality planning and conformity purposes.[1] Alternatively, for vehicle classes where appropriate local data are made available for review through the interagency consultation process, use of trip factoring or other methods to fully account for vehicle starts may be employed. Such alternative approaches should be discussed in the interagency consulation process.

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[1] An exception would occur when a user chooses to factor these start-based trips to account for trip reduction programs. EMFAC2002 start-based trips rather than destination-based trips should serve as the baseline for this adjustment. The adjustment would be made through the What-If Scenario (WIS) function of EMFAC2002 as follows, where TRS denotes the trip reduction scenario:

*WIS Input TRS Trips = EMFAC Default Trips * (RTPA TRS Trips / RTPA Baseline Trips)*

Vehicle speeds. Most travel demand models provide output of estimated average speed by time period and link that may be summarized for use in EMFAC2002. For each major vehicle class and up to 24 hourly time periods, total VMT is divided into 13 different speed "bins" (5 mph through 65 mph) and used as input to EMFAC2002. ARB recommends continuation of this current practice to develop emissions budgets and assess conformity. Travel from intrazonal trips should be assigned to the appropriate speed bin based on the speed assigned to that travel in the travel demand model. VMT for each speed bin and time period can be used as input through the WIS function of EMFAC2002. It is also possible to input this data specific to vehicle class if adequate and defensible local data are available.

Vehicle population. Vehicle trips (starts) in EMFAC2002 are estimated as a function of the number of vehicles, or vehicle population, by county. The population of each class of motor vehicle is estimated and forecast from Department of Motor Vehicles (DMV) registration data. EMFAC2002 assumes there is a relationship between vehicle population and VMT, carried through mileage accrual rates.[2] In the default case, the model assumes *vehicle population * mileage accrual = VMT.* ARB-preferred practice is to maintain this internal consistency, for reasons explained below.

Vehicle miles of travel. Daily VMT is both an emissions model input usually provided by MPOs/RTPAs and a model output used to estimate exhaust emissions. ARB staff reviews MPO/RTPA estimates of VMT and vehicle speeds, and supports these estimates for use in air quality plans whenever we agree they are reasonable and defensible. Use of the latest estimates of MPO/RTPA VMT and speeds in plan development facilitates the subsequent federal transportation conformity process. This is particularly important for any year for which the plan creates emissions budgets, as conformity rules allow no emissions budget exceedance, regardless of how small. As there may be some variance between default EMFAC2002 VMT and more recent MPO/RTPA estimates to be used for SIP development, we are recommending a procedure to more exactly incorporate into emissions budgets revised VMT estimates for emissions budget analysis years.

Although it is possible to directly input VMT into EMFAC2002 through the model's WIS function, it is generally not recommended to do this independent of vehicle population because of the desire to properly estimate start and evaporative emissions tied to the size of the vehicle fleet. A change in total forecasted miles of travel implies a change either in the number of vehicles traveling those miles or in mileage accrual rates. For future years, we generally recommend making vehicle population the variable, rather than mileage accrual. Thus, VMT adjustment would usually occur through vehicle population adjustment in the model's WIS function, according to this formula:

*WIS Input Population = EMFAC Default Population * (RTPA VMT / EMFAC Default VMT)*

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[2] Accrual rates are miles traveled per year as a function of vehicle age, derived from the Bureau of Automotive Repair Smog Check database as described in Section 7.1 of the EMFAC2000 Technical Support Document, found via http://www.arb.ca.gov/msei/on-road/latest_revisions.htm#pcaccrual.

The result of this modification is that emissions estimates more precisely incorporate the daily VMT provided by each MPO/RTPA to calculate exhaust emissions, and vehicle population is adjusted for consistency with this assumption of higher or lower VMT, providing similarly modified start and evaporative emissions.[3] Though the emissions impact of using this approach will often be small, we believe the approach is appropriate given the desire to fully reflect the impacts of changes in travel activity on all emissions processes. Use of consistent methods in air quality plans and conformity assessments will both reduce potential conformity problems and preserve the integrity of the SIP and conformity processes.

Alternatively, local data may indicate that changes in VMT are tied more closely to changes in household or business rates of travel than to changes in vehicle ownership. Or, improved travel demand modeling may project auto ownership rates with a high degree of confidence. In such cases it may be appropriate to adjust total mileage accrual rather than vehicle population. It is also possible to derive a modified VMT forecast from adjustments to both variables in EMFAC2002. Planning agencies are encouraged to present alternative approaches for consideration in the interagency consultation process.

Recommendations

1. ARB recommends that the EMFAC2002 default estimates of vehicle trips, based on starts per day, be used for SIP development and conformity purposes. Model defaults for trips may be factored to account for trip reduction scenarios, but should not be replaced with estimates that do not account for all vehicle starts. Alternative approaches, such as the factoring of travel demand model trip outputs for appropriate classes to account for additional starts, may be considered through interagency consultation.

2. We recommend continuation of current practices for input of latest speed distributions for SIPs and conformity assessments. Travel from intrazonal trips should be assigned to the appropriate speed bin based on the speed assigned to that travel in the travel demand model.

3. To fully reflect the impacts of modified VMT forecasts on all emissions processes, in the calculation of SIP emissions budgets, and in the assessment of conformity with those budgets, vehicle population should be adjusted in EMFAC2002 proportional to the estimated VMT change. Local circumstances may alternatively support adjustment of mileage accrual rates, subject to interagency consultation.

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[3] After adjusting VMT through use of the population variable in the WIS function of EMFAC, a user who desires to match VMT even more exactly (to the mile instead of the tens of miles) can then adjust VMT in the WIS without disturbing the population adjustment. This is unlikely to have a discernible impact on emissions, however.

Appendix G
MTC Resolution No. 3891

Date: April 22, 2009
W.I.: 1412
Referred by: Planning Committee

ABSTRACT

Resolution No. 3891

This resolution finds that the Transportation 2035 Plan and 2009 Transportation Improvement Program, as amended by Amendment #09-06, are in conformance with the federal air quality plan, which is also referred to as the State Implementation Plan (SIP), to achieve National Ambient Air Quality Standards.

Date: April 22, 2009
W.I.: 1412
Referred by: Planning Committee

RE: Approval of the Final Transportation Air Quality Conformity Analysis of the Transportation 2035 Plan and 2009 Transportation Improvement Program/Amendment #09-06

METROPOLITAN TRANSPORTATION COMMISSION
RESOLUTION NO. 3891

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning agency for the San Francisco Bay Area pursuant to Government Code Section 66500 et seq.; and

WHEREAS, MTC is the designated Metropolitan Planning Organization (MPO) for the nine-county San Francisco Bay Area region (the region); and

WHEREAS, MTC has updated its long-range regional transportation plan, the Transportation 2035 Plan, to be approved on April 22, 2009 (MTC Resolution 3893); and

WHEREAS, MTC has amended the 2009 Transportation Improvement Program (TIP) through Amendment #09-06, to be approved on April 22, 2009 (MTC Resolution 3875, Revised); and

WHEREAS, the Transportation 2035 Plan and the 2009 TIP, as amended through Amendment #09-06, must conform to the federal air quality plan, which is also referred to as the State Implementation Plan (SIP); and

WHEREAS, inclusion of new regionally significant, non-exempt transportation projects in the TIP requires that MTC update the transportation conformity analysis for the TIP (the 2009 TIP was previously determined to conform to the SIP on May 28, 2008 by MTC Resolution No. 3876); and

WHEREAS, federal planning regulations also require a re-determination of the conformity for the entire TIP within six (6) months of adopting a new long-range regional transportation plan (40 CFR Section 93.104(c)); and

WHEREAS, MTC has conducted a transportation air quality conformity analysis for the Transportation 2035 Plan and 2009 TIP, as amended with Amendment #09-06, in accordance with U.S. Environmental Protection Agency (U.S. EPA) conformity regulations and the Bay Area Air Quality Conformity Protocol (MTC Resolutions No. 3757); and

WHEREAS, said conformity analysis is included as Attachment A of this resolution, and is incorporated herein as though set forth at length; and

WHEREAS, the conformity analysis has been circulated for 30-day public review period from January 9, 2009 through February 9, 2009; now, therefore be it

RESOLVED, that MTC makes the following conformity findings for the Transportation 2035 Plan and 2009 Transportation Improvement Program, as amended with Amendment #09-06:

(A) The conformity analysis was conducted consistent with U.S. EPA's transportation conformity regulations and with the Bay Area Air Quality Conformity Protocol (MTC Resolution No. 3757);

(B) The Transportation 2035 Plan and 2009 Transportation Improvement Program, as amendment with Amendment #09-06, provide for the timely implementation of transportation control measures (TCMs) pursuant to the applicable federal regulations;

(C) For carbon monoxide, motor vehicle emissions in the Transportation 2035 Plan and 2009 Transportation Improvement Program, as amended with Amendment #09-06, are lower than the transportation conformity budget in the SIP; and

(D) For Volatile Organic Compounds (VOC) and Nitrogen Oxides (NO_x), motor vehicle emissions in the Transportation 2035 Plan and 2009 Transportation Improvement Program, as amended with Amendment #09-06, are lower than the transportation conformity budget in the SIP.

RESOLVED, that Executive Director shall forward a copy of this Resolution to the U.S. Department of Transportation for its approval of MTC's conformity findings, along with a copy of the Transportation 2035 Plan and 2009 Transportation Improvement Program, as amended with Amendment #09-06, and to such other agencies as appropriate.

METROPOLITAN TRANSPORTATION COMMISSION

Scott Haggerty, Chair

The above resolution was entered into by the Metropolitan Transportation Commission at a regular meeting of the Commission held in Oakland, California, on April 22, 2009.

Date: April 22, 2009
W.I.: 1412
Referred by: PC

Attachment A
Resolution No. 3891
Page 1 of 1

Final Transportation Air Quality Conformity Analysis for the Transportation 2035 Plan and 2009 Transportation Improvement Program/Amendment #09-06

A copy of the *Final Transportation Air Quality Conformity Analysis for the Transportation 2035 Plan and 2009 Transportation Improvement Program/Amendment #09-06* is on file in the offices of the Metropolitan Transportation Commission located at the Joseph P. Bort MetroCenter, 101 Eighth Street, Oakland, California 94607.

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